



Repair Manual

Golf Variant 2007 ➤

Golf Variant 2010 ➤

Jetta 2005 ➤

Jetta 2011 ➤

5-Speed Manual Transmission 0A4

Edition 12.2017





List of Workshop Manual Repair Groups

Repair Group

00 - General, Technical Data

30 - Clutch

34 - Controls, Housing

35 - Gears, Shafts

39 - Final Drive, Differential



Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.



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00 – General, Technical Data

1 Safety Precautions

(Edition 12.2017)

⇒ **"1.1 Safety Precautions, Vehicles with Start/Stop System",
page 1**

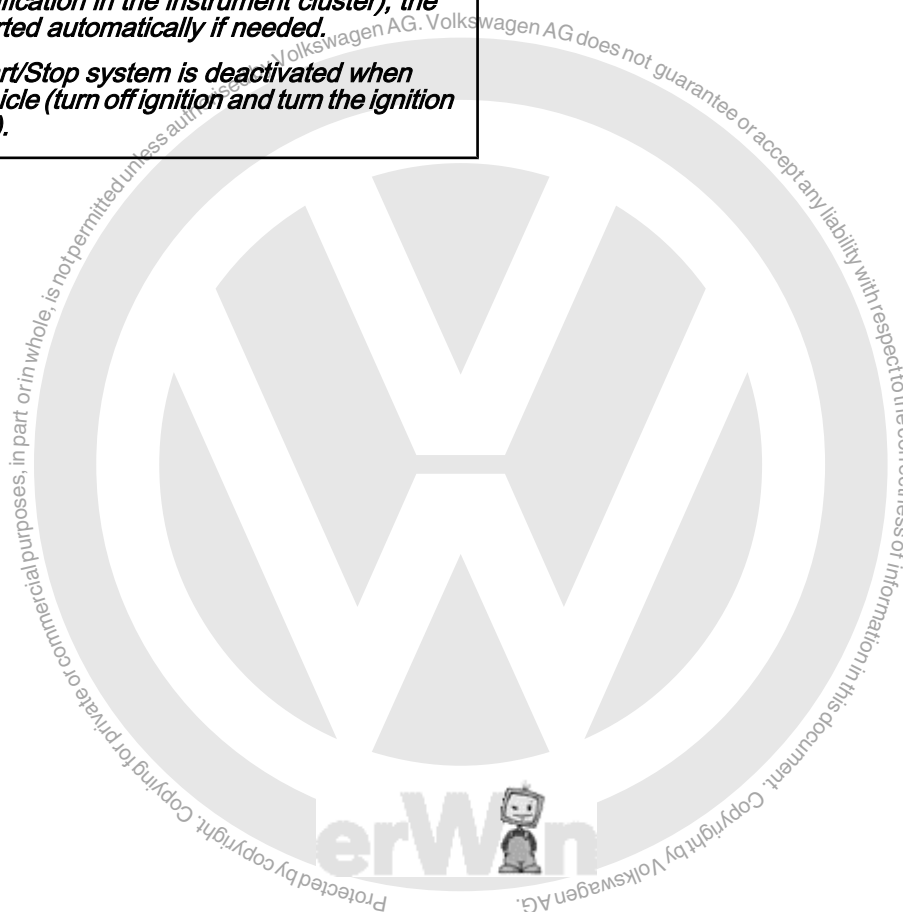
1.1 Safety Precautions, Vehicles with Start/Stop System



WARNING

Risk of injury if the engine starts automatically in vehicles with a Start/Stop System.

- ◆ *For vehicles with an activated Start/Stop System (recognizable from a notification in the instrument cluster), the engine can be started automatically if needed.*
- ◆ *Make sure the Start/Stop system is deactivated when working on the vehicle (turn off ignition and turn the ignition back on if needed).*





2 Transmission Identification

⇒ "2.1 General Information", page 2

⇒ "2.2 Location on Transmission", page 2

⇒ "2.3 Codes, Transmission Allocation and Capacities",
page 3

2.1 General Information

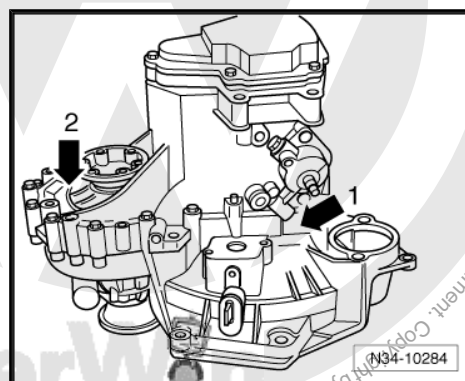
The 0A4 manual transmission is installed as a 5-speed transmission in conjunction with the 4-cylinder and 5-cylinder engine in the Jetta from MY 2005, Bora from MY 2006, Golf Wagon from MY 2007, Bora Sportwagen from MY 2008, Golf Wagon from MY 2010 and Jetta from MY 2011.

Allocation. Refer to

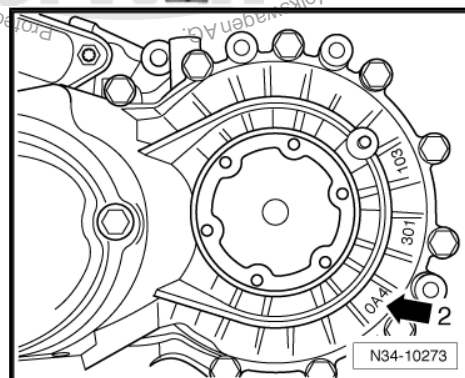
⇒ "2.3 Codes, Transmission Allocation and Capacities",
page 3 .

2.2 Location on Transmission

Code letters and build date -arrow 1- manual transmission 0A4
-arrow 2-



Manual Transmission 0A4 -arrow 2-



Transmission Code Letters and Build Date

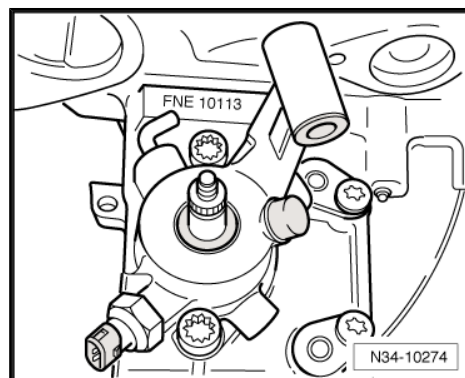
Example:	FNE	10	11	3
	Codes	Day	Month	Year (2003) of manufacture

For additional data and information contact the factory.



Note

The transmission code is also listed on the vehicle data label.






2.3 Codes, Transmission Allocation and Capacities

Manual Transmission		5-Speed 0A4		
Codes		FNE	GQQ	HGR
Manufactured	from through	05/2005 05/2005	05/2005 08/2006	05/2005 08/2006
Allocation	Type	Jetta from MY 2005, Bora from MY 2006 Golf Wagon from MY 2007 Bora Sportwagen from MY 2008	Jetta from MY 2005, Bora from MY 2006 Golf Wagon from MY 2007 Bora Sportwagen from MY 2008	Jetta from MY 2005, Bora from MY 2006 Golf Wagon from MY 2007 Bora Sportwagen from MY 2008
	Engine	1.9L - 77 kW Turbo Diesel	1.9L - 74 kW Turbo-Diesel 1.9L - 77 kW Turbo-Diesel	2.5L - 110 kW
Ratio Z1 : Z2	Final Drive	61 : 18 = 3.389	61 : 18 = 3.389	62 : 17 = 3.647
Manual transmission capacity (transmission completely disassembled)		Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03
Manual transmission capacity. Refer to ⇒ "6 Transmission Fluid, Checking and Filling", page 176 (transmission partly disassembled)		Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03
Driveshaft flange diameter		100 mm	100 mm	100 mm
<ul style="list-style-type: none"> Refer to the Parts Catalog for the following information. ◆ The individual gear ratios ◆ Transmission fluid specification ◆ Clutch disc and pressure plate allocation 				

Manual Transmission		5-Speed 0A4		
Codes		HDR	GTB	JCT
Manufactured	from through	01/2005 08/2006	05/2005 05/2005	05/2006 06/2007
Allocation	Type	Jetta from MY 2005, Bora from MY 2006 Golf Wagon from MY 2007 Bora Sportwagen from MY 2008	Jetta from MY 2005, Bora from MY 2006 Golf Wagon from MY 2007 Bora Sportwagen from MY 2008	Jetta from MY 2005, Bora from MY 2006 Golf Wagon from MY 2007 Bora Sportwagen from MY 2008
	Engine	2.0L - 85 kW	2.5L - 110 kW	2.5L - 110 kW
Ratio Z1 : Z2	Final Drive	62 : 17 = 3.647	62 : 17 = 3.647	62 : 17 = 3.647
Manual transmission capacity (transmission completely disassembled)		Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03
Manual transmission capacity. Refer to ⇒ "6 Transmission Fluid, Checking and Filling", page 176 (transmission partly disassembled)		Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03
Driveshaft flange diameter		100 mm	108 mm	108 mm



Manual Transmission	5-Speed 0A4		
Codes	HDR	GTB	JCT
<ul style="list-style-type: none"> Refer to the Parts Catalog for the following information. ◆ The individual gear ratios ◆ Transmission fluid specification ◆ Clutch disc and pressure plate allocation 			

Manual Transmission	5-Speed 0A4		
Codes	JCR	JCU	KBL
Manufactured from through	05/2006	05/2006	12/2006
Allocation Type	Jetta from MY 2005, Bora from MY 2006 Golf Wagon from MY 2007 Bora Sportwagen from MY 2008 Golf Wagon from MY 2010	Jetta from MY 2005, Bora from MY 2006 Golf Wagon from MY 2007 Bora Sportwagen from MY 2008	Jetta from MY 2005, Bora from MY 2006 Golf Wagon from MY 2007 Bora Sportwagen from MY 2008
Engine	1.9L - 74 kW Turbo-Diesel 1.9L - 77 kW Turbo-Diesel	2.0L - 85 kW	1.9L - 77 kW Turbo Diesel
Ratio Final Drive Z1 : Z2	61 : 18 = 3.389	72 : 17 = 4.235	61 : 18 = 3.389
Manual transmission capacity (transmission completely disassembled)	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03
Manual transmission capacity. Refer to ⇒ "6 Transmission Fluid, Checking and Filling", page 176 (transmission partly disassembled)	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03
Driveshaft flange diameter	108 mm	 100 mm	100 mm
<ul style="list-style-type: none"> Refer to the Parts Catalog for the following information. ◆ The individual gear ratios ◆ Transmission fluid specification ◆ Clutch disc and pressure plate allocation 			

Manual Transmission	5-Speed 0A4		
Codes	LHW	LUB	KPF
Manufactured from through	02/2009	08/2009	04/2010
Allocation Type	Jetta from MY 2005, Bora from MY 2006 Golf Wagon from MY 2007 Bora Sportwagen from MY 2008 Golf Wagon from MY 2010 Jetta from MY 2011	Jetta from MY 2005, Bora from MY 2006 Golf Wagon from MY 2007 Bora Sportwagen from MY 2008 Golf Wagon from MY 2010 Jetta from MY 2011	Jetta from MY 2005, Bora from MY 2006 Golf Wagon from MY 2007 Bora Sportwagen from MY 2008 Golf Wagon from MY 2010 Jetta from MY 2011



Manual Transmission	5-Speed 0A4		
Codes	LHW	LUB	KPF
Engine	1.6L - 77 kW turbo diesel	1.6L - 77 kW turbo diesel	2.5L - 125 kW
Ratio Z1 : Z2	62 : 17 = 3.647	62 : 17 = 3.647	62 : 17 = 3.647
Manual transmission capacity (transmission completely disassembled)	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03
Manual transmission capacity. Refer to ⇒ "6 Transmission Fluid, Checking and Filling", page 176 (transmission partly disassembled)	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03
Driveshaft flange diameter	100 mm	100 mm	100 mm
<ul style="list-style-type: none"> Refer to the Parts Catalog for the following information ◆ The individual gear ratios ◆ Transmission fluid specification ◆ Clutch disc and pressure plate allocation 			

Manual Transmission	5-Speed 0A4		
Codes	KQM	KCD	LEA
Manufactured from through	06/2010	08/2009	05/2010
Allocation Type	Jetta from MY 2005, Bora from MY 2006 Golf Wagon from MY 2007 Bora Sportwagen from MY 2008 Golf Wagon from MY 2010 Jetta from MY 2011	Golf Wagon from MY 2010 Jetta from MY 2011	Golf Wagon from MY 2010 Jetta from MY 2011
Engine	2.0L - 81 kW Turbo-Diesel	2.5L - 125 kW	2.5L - 125 kW
Ratio Z1 : Z2	61 : 18 = 3.389	62 : 17 = 3.647	61 : 18 = 3.778
Manual transmission capacity (transmission completely disassembled)	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03
Manual transmission capacity. Refer to ⇒ "6 Transmission Fluid, Checking and Filling", page 176 (transmission partly disassembled)	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03
Driveshaft flange diameter	100 mm	100 mm	100 mm
<ul style="list-style-type: none"> Refer to the Parts Catalog for the following information. ◆ The individual gear ratios ◆ Transmission fluid specification ◆ Clutch disc and pressure plate allocation 			



Manual Transmission		5-Speed 0A4		
Codes		MJN	MUC	NZA
Manufactured	from through	06/2010	06/2010	07/2013
Allocation	Type	Golf Wagon from MY 2010 Jetta from MY 2011	Golf Wagon from MY 2010 Jetta from MY 2011	Jetta from MY 2011
	Engine	2.0L - 85 kW	2.5L - 125 kW	1.8L - 125 kW
Ratio Z1 : Z2	Final Drive	72 : 17 = 4.235	62 : 17 = 3.647	61 : 18 = 3.389
Manual transmission capacity (transmission completely disassembled)		Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03
Manual transmission capacity. Refer to ⇒ page 176 (transmission partly disassembled)		Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03
Drive Axle Flange Diameter		100 mm	100 mm	100 mm
<ul style="list-style-type: none"> Refer to the Parts Catalog for the following information. ◆ The individual gear ratios ◆ Transmission fluid specification ◆ Clutch plate and pressure plate allocation 				

Manual Transmission		5-Speed 0A4	
Codes		RNM	RTV
Manufactured	from through	02/2016	06/2016
Allocation	Type	Jetta from MY 2011	Jetta from MY 2011
	Engine	1.8L - 125 kW	1.8L - 125 kW
Ratio Z1 : Z2	Final Drive	61 : 18 = 3.389	61 : 18 = 3.389
Manual transmission capacity (transmission completely disassembled)		1.9 liters	1.9 liters
Manual transmission capacity. Refer to ⇒ "6 Transmission Fluid, Checking and Filling" , page 176 (transmission partly disassembled)		1.7 liters	1.7 liters
Drive Axle Flange Diameter		100 mm	100 mm
<ul style="list-style-type: none"> Refer to the Parts Catalog for the following information. ◆ The individual gear ratios ◆ Transmission fluid specification ◆ Clutch plate and pressure plate allocation 			

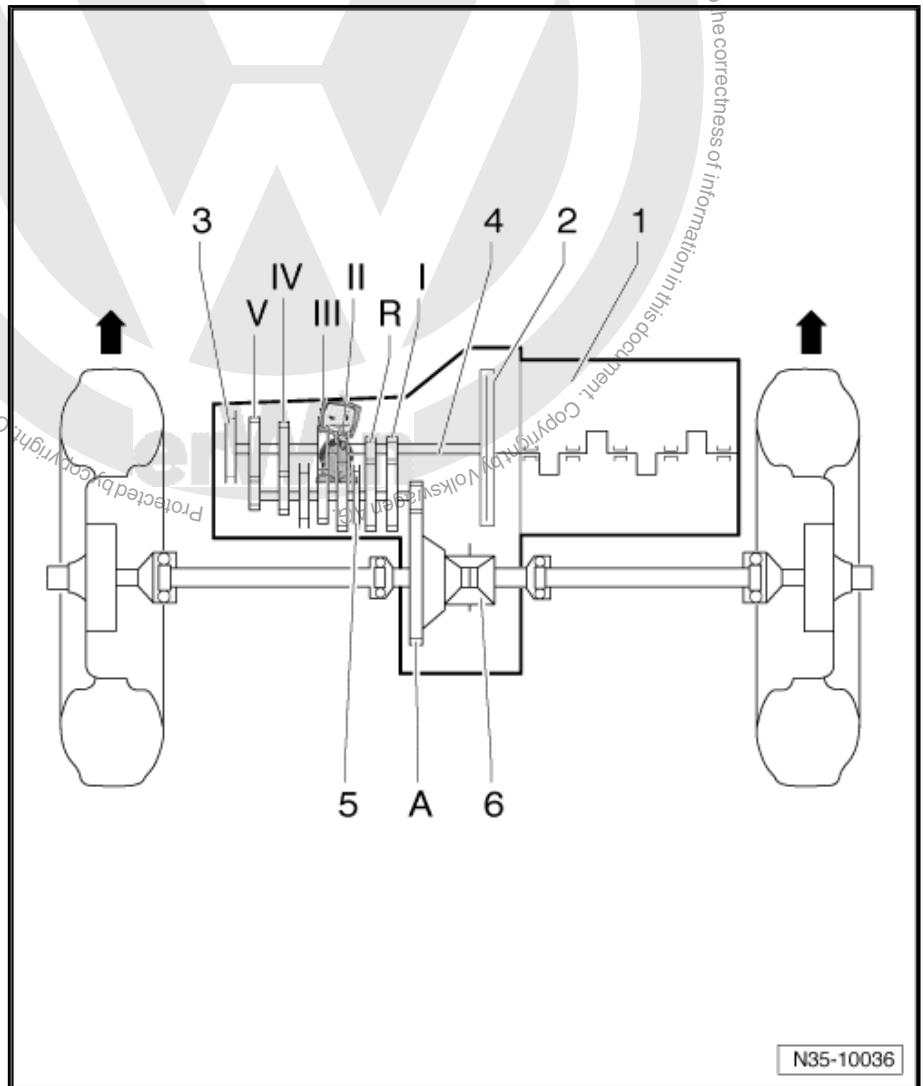


3 Overview - Transmission

Name

-Arrows- point in the direction of travel

- 1 - Engine
- 2 - Clutch
- 3 - Manual Transmission
- 4 - Input Shaft
- 5 - Output Shaft
- 6 - Differential

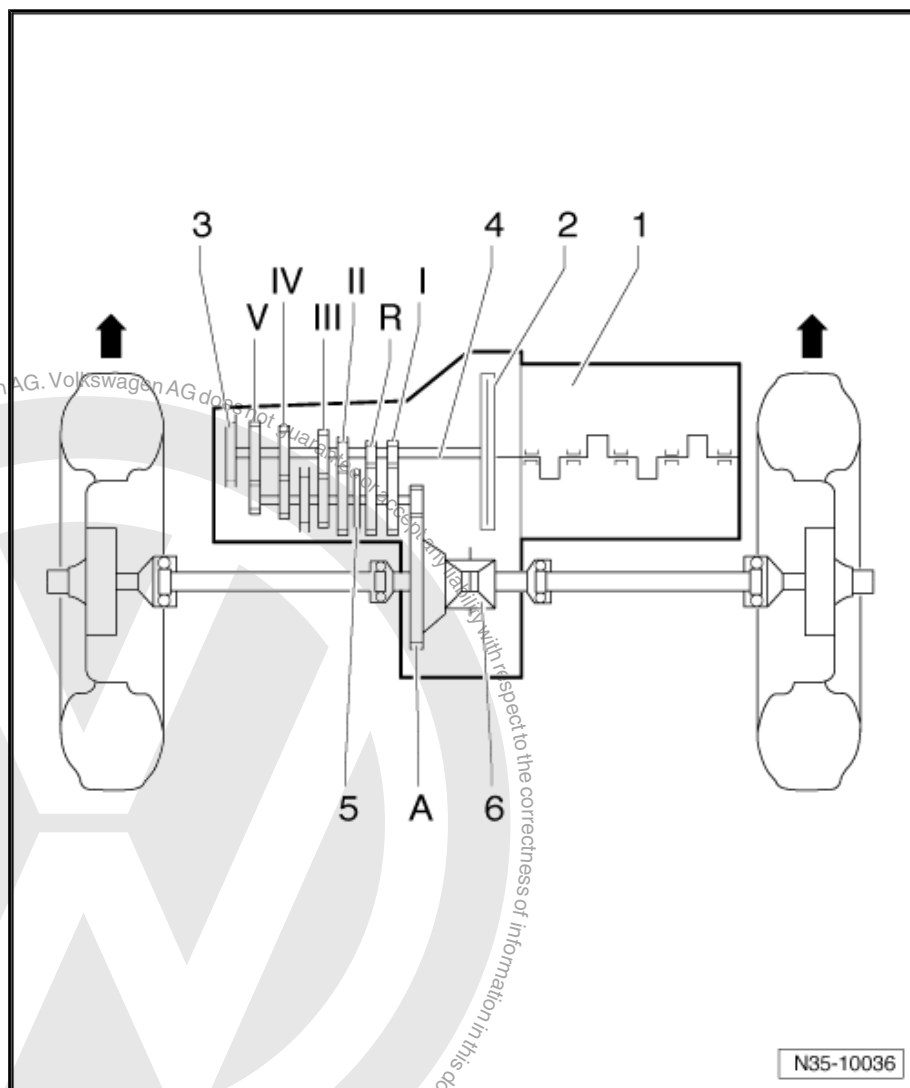


Ratio

-Arrows- point in the direction of travel



- I - 1st Gear
- II - 2nd Gear
- III - 3rd Gear
- IV - 4th Gear
- V - 5th Gear
- R - Reverse Gear
- A - Final Drive





4 Transmission Ratio "i", Calculating

Example:

	5th Gear	Final Drive
Drive gear	$ZG_1 = 39$	$ZA_1 = 18$
Driven gear	$ZG_2 = 29$	$ZA_2 = 61$

$$i = Z_2 : Z_1^{1)}$$

$$i_G = \text{gear ratio} = ZG_2 : ZG_1 = 29 : 39 = 0.744$$

$$i_A = \text{axle ratio} = ZA_2 : ZA_1 = 61 : 18 = 3.389$$

$$i_{\text{total}} = \text{total ratio} = i_G \times i_A = 0.744 \times 3.389 = 2.521$$

1) Z_1 = Number of teeth on the drive gear, Z_2 = Number of teeth on the driven gear





5 General Repair Information

⇒ "5.1 Components", page 10

The highest level of care and cleanliness along with tools that function properly are required to ensure a proper and successful transmission repair. Of course the general safety precautions also apply when carrying out repair work.

A number of generally applicable instructions for individual repair procedures, which are otherwise mentioned at various points in the Repair Manual, are summarized here under the topic "Components". Refer to ⇒ "5.1 Components", page 10 . They apply to this repair manual.

5.1 Components

⇒ "5.1.1 Transmission", page 10

⇒ "5.1.2 O-Rings, Gaskets, Seals and Sealant", page 11

⇒ "5.1.3 Retainers", page 11

⇒ "5.1.4 Bolts and Nuts", page 12

⇒ "5.1.5 Bearings", page 12

⇒ "5.1.6 Shims", page 12

⇒ "5.1.7 Synchronizer Rings", page 13

⇒ "5.1.8 Gear Wheels, Synchronizer Hubs and Needle Bearing Inner Races", page 13

⇒ "5.1.9 Selector Gears", page 13

⇒ "5.1.10 Clutch", page 13

5.1.1 Transmission

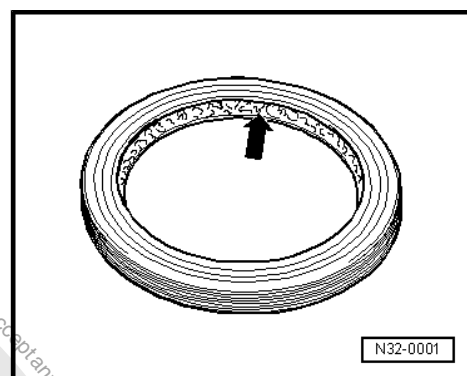
- ◆ Make sure that the alignment bushings between the engine and transmission are positioned correctly when installing the manual transmission.
- ◆ Clean the contact surfaces when installing brackets and waxed components. Contact surfaces must be free of wax and grease.
- ◆ Allocate the bolts and other components. Refer to the Parts Catalog.
- ◆ Capacities. Refer to ⇒ "2.3 Codes, Transmission Allocation and Capacities", page 3 .
- ◆ Fill the transmission fluid when repairing the manual transmission.

Capacity, Transmission Completely Disassembled	Capacity, Transmission Partially Disassembled. Refer to ⇒ "6 Transmission Fluid, Checking and Filling", page 176
Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03	Refer to ⇒ Fluid Capacity Tables; Rep. Gr. 03



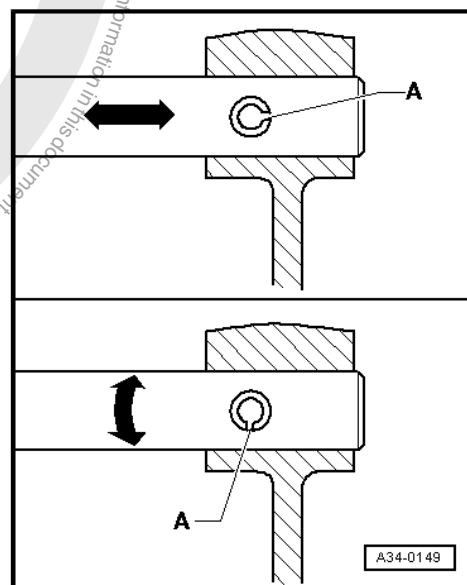
5.1.2 O-Rings, Gaskets, Seals and Sealant

- ◆ Clean the housing separating surfaces thoroughly before applying the sealant .
- ◆ Apply the Sealant - AMV 188 200 03- evenly and not too thick.
- ◆ Replace the O-rings, seals and gaskets.
- ◆ After removing gaskets, examine the contact surface on housing/shaft for burrs resulting from removal or for other damage.
- ◆ Before installing the radial shaft seals lightly oil the outer circumference and fill the space between the sealing lips -arrow- halfway with Grease - G 052 128 A1- .
- ◆ The open side of the gaskets point toward the fluid to be sealed in.
- ◆ When installing the new shaft seals, make sure the sealing lip does not run on the same point as the sealing lip of the old seal (use insertion depth tolerances).
- ◆ Lightly lubricate the O-rings before inserting to prevent the rings from being crushed during assembly.
- ◆ After replacing the seals and sealing rings, check the transmission fluid level and fill if necessary. Refer to ["6 Transmission Fluid, Checking and Filling", page 176](#) .



5.1.3 Retainers

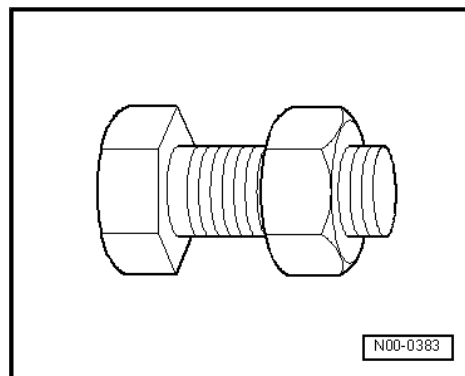
- ◆ Do not stretch the circlips.
- ◆ Always replace damaged or stretched circlips.
- ◆ The circlips must rest at the bottom of the groove.
- ◆ Replace the adapter sleeves. Installation position: the slot -A- should align with the line of force -arrow-.





5.1.4 Bolts and Nuts

- ◆ Loosen the bolts and nuts opposite the tightening sequence.
- ◆ Nuts and bolts which secure covers and housings should be loosened and tightened diagonally and in steps if no tightening sequence is specified.
- ◆ Especially delicate parts, such as clutch pressure plates, must not be distorted. Loosen and tighten bolts and nuts in stages in a diagonal sequence.
- ◆ The tightening specifications given apply to uncoiled bolts and nuts.
- ◆ Always replace self-locking bolts and nuts.
- ◆ Use a wire brush to clean the threads of the bolts that were installed with locking fluid. Then insert the bolts with Locking Fluid - AMV 185 101 A1- .
- ◆ Clean the threaded holes for the self-locking bolts or for the bolts coated with locking fluid. (for example with a thread tap). Otherwise there is the risk that the bolts could break off the next time they are removed.

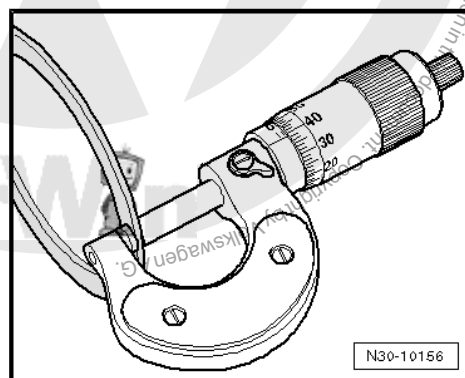


5.1.5 Bearings

- ◆ Install needle bearings with the lettered side (thicker metal) facing the fitting tool.
- ◆ Insert all the bearings in transmission with gear oil.
- ◆ Replace all the tapered roller bearings that are on the same shaft, and use tapered roller bearings from the same manufacturer.
- ◆ To install, heat the bearing inner faces to approximately 100° C (212 °F) with Inductive Heater VAS6414- .
- ◆ Do not interchange outer and inner bearing races with those from other bearing of the same size. The bearings are paired.

5.1.6 Shims

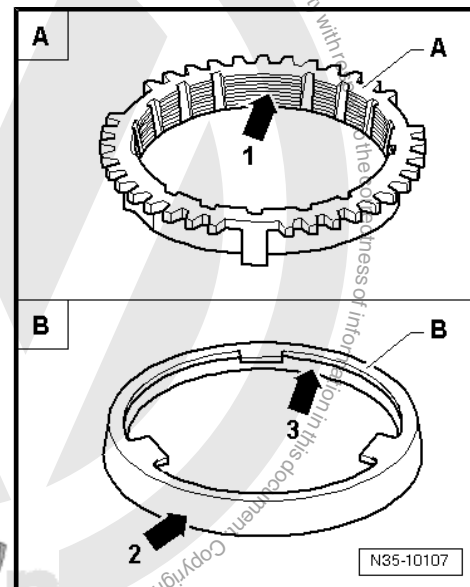
- ◆ Measure the shims at several locations with a micrometer caliper. Tolerance variations make it possible to find the exact shim thickness required.
- ◆ Check for burrs or damage.
- ◆ Only install perfect shims.





5.1.7 Synchronizer Rings

- ◆ Do not interchange them. When reusing synchronizer rings, always install on the same gear wheel.
- ◆ Check for wear and replace if necessary.
- ◆ Check the grooves -arrow 1- on the synchronizer ring -A- and the inner race for flat areas (grooves are worn).
- ◆ The coating on the synchronizer rings must not be damaged.
- ◆ If an intermediate ring -B- is installed, check the outer friction surface -arrow 2- and the inner friction surface -arrow 3- for »grooves« and »scoring«.
- ◆ Check taper of drive gear for »grooves« and »scoring«.
- ◆ Coat the synchronizing with transmission fluid and then install.



5.1.8 Gear Wheels, Synchronizer Hubs and Needle Bearing Inner Races

- ◆ To install, warm the needle bearing inner race to approximately 100 °C (212 °F) with Inductive Heater - VAS6414- .
- ◆ Heat the synchronizer hub to approximately 100 °C (212 °F) with the Inductive Heat Unit - VAS6414- before installing. Press on as far as the stop when installing so there is no axial play.
- ◆ Heat the gears to approximately 100 °C (212 °F) with the Inductive Heat Unit - VAS6414- before installing. Press on as far as the stop when installing so there is no axial play.
- ◆ Pay attention to the installed location.

5.1.9 Selector Gears

- ◆ After installing, check 1st through 5th gear for minimal amount of axial clearance and for ease of movement.

5.1.10 Clutch

- ◆ When removing transmission, remove the clutch slave cylinder without opening the lines.
- ◆ If the clutch slave cylinder is removed with the hydraulic line attached, do not depress clutch pedal. Otherwise the piston will be pressed out of the clutch slave cylinder.
- ◆ Do not tilt the clutch pressure plate. Loosen and tighten it diagonally and in small steps.
- ◆ To reduce odor caused by a burnt clutch, thoroughly clean the clutch housing and the flywheel running surface with a clean cloth.



30 – Clutch

1 Clutch Mechanism, Servicing

⇒ [“1.1 Overview”, page 14](#)

⇒ [“1.1 Overview”, page 14](#)

⇒ [“1.3 Over-Center Spring, Removing and Installing”, page 17](#)

⇒ [“1.4 Clutch Pedal, Removing and Installing”, page 23](#)

⇒ [“1.5 Mounting Bracket, Removing and Installing”, page 28](#)

⇒ [“1.6 Clutch Master Cylinder, Removing and Installing”,
page 33](#)

⇒ [“1.7 Clutch Position Sensor G476 , Removing and Installing”,
page 35](#)

⇒ [“1.8 Overview - Hydraulics”, page 37](#)

⇒ [“1.10 Clutch Slave Cylinder, Removing and Installing”,
page 41](#)

⇒ [“1.11 Clutch System, Bleeding”, page 44](#)

1.1 Overview



Note

- ◆ *Get the anti-theft code for the radio before disconnecting the battery.*
- ◆ *Disconnect the battery ground cable with the ignition switched off. Refer to ⇒ [Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting](#) .*
- ◆ *Connect battery and follow the procedures to be performed after connecting a battery. Refer to ⇒ [Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting](#) .*
- ◆ *Lubricate all bearing areas and contact surfaces. Refer to the [Parts Catalog](#) for the grease allocation.*

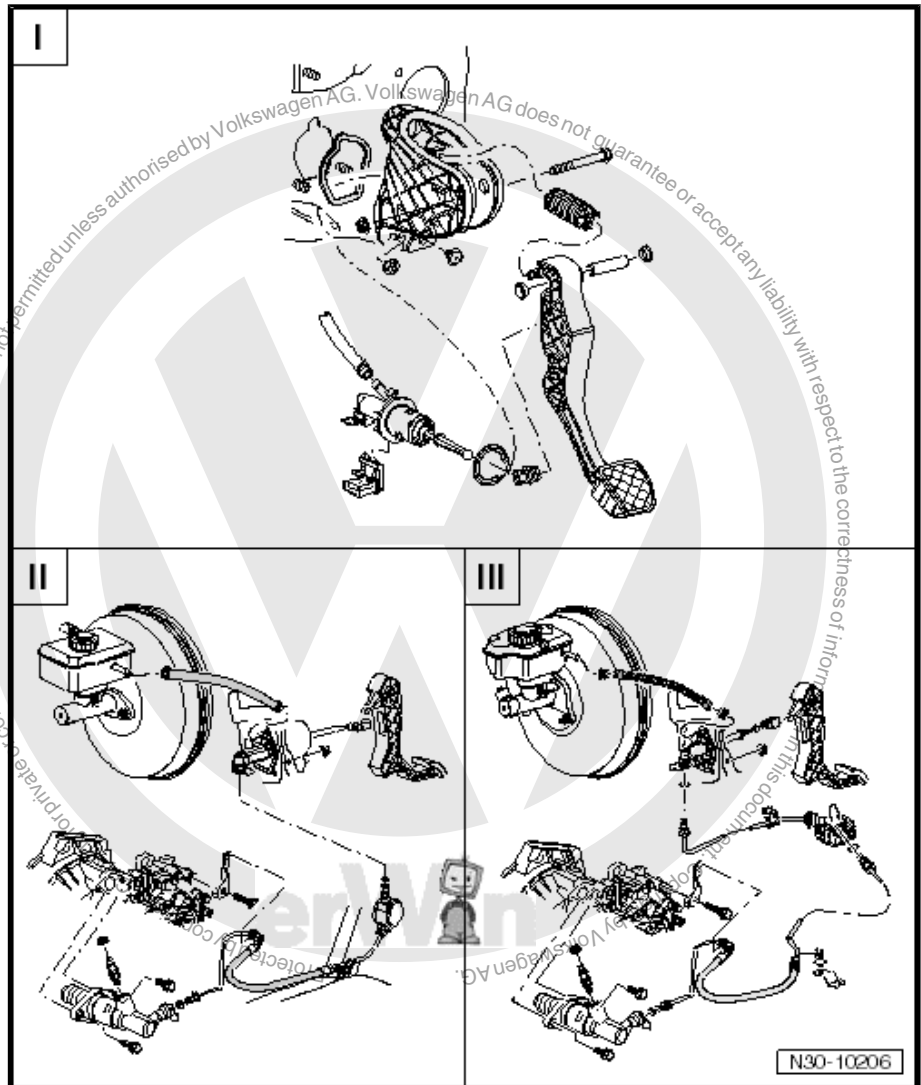


I - Overview Pedal Cluster. Refer to
⇒ ["1.2 Overview - Pedal Assembly", page 16](#) .

II - Overview Hydraulics. Refer to
⇒ ["1.8 Overview - Hydraulics", page 37](#) .

III - Overview Hydraulics

Not for North American market.



1.2 Overview - Pedal Assembly

1 - Bulkhead

- ☐ With a mount for the mounting bracket

2 - Seal

- ☐ Always replace.
- ☐ Between the mounting bracket and bulkhead
- ☐ Self-adhesive
- ☐ Attached to the mounting bracket

3 - Mounting Bracket

- ☐ For the clutch pedal mount
- ☐ Some versions have a damper. Refer to [⇒ Fig. "Mounting Bracket with Damper -arrow- ", page 17](#)
- ☐ Removing and Installing. Refer to [⇒ "1.5 Mounting Bracket, Removing and Installing", page 28](#) .

4 - Bolt

5 - Over-Center Spring

- ☐ Removing and Installing. Refer to [⇒ "1.3 Over-Center Spring, Removing and Installing", page 17](#) .

6 - Bearing Bushing

7 - Mounting Pin

8 - Clutch Pedal

- ☐ Removing and Installing. Refer to [⇒ "1.4 Clutch Pedal, Removing and Installing", page 23](#) .

9 - Support

- ☐ To remove and install, disconnect the clutch master cylinder from the clutch pedal. Refer to [⇒ "1.4 Clutch Pedal, Removing and Installing", page 23](#) .

10 - Seal

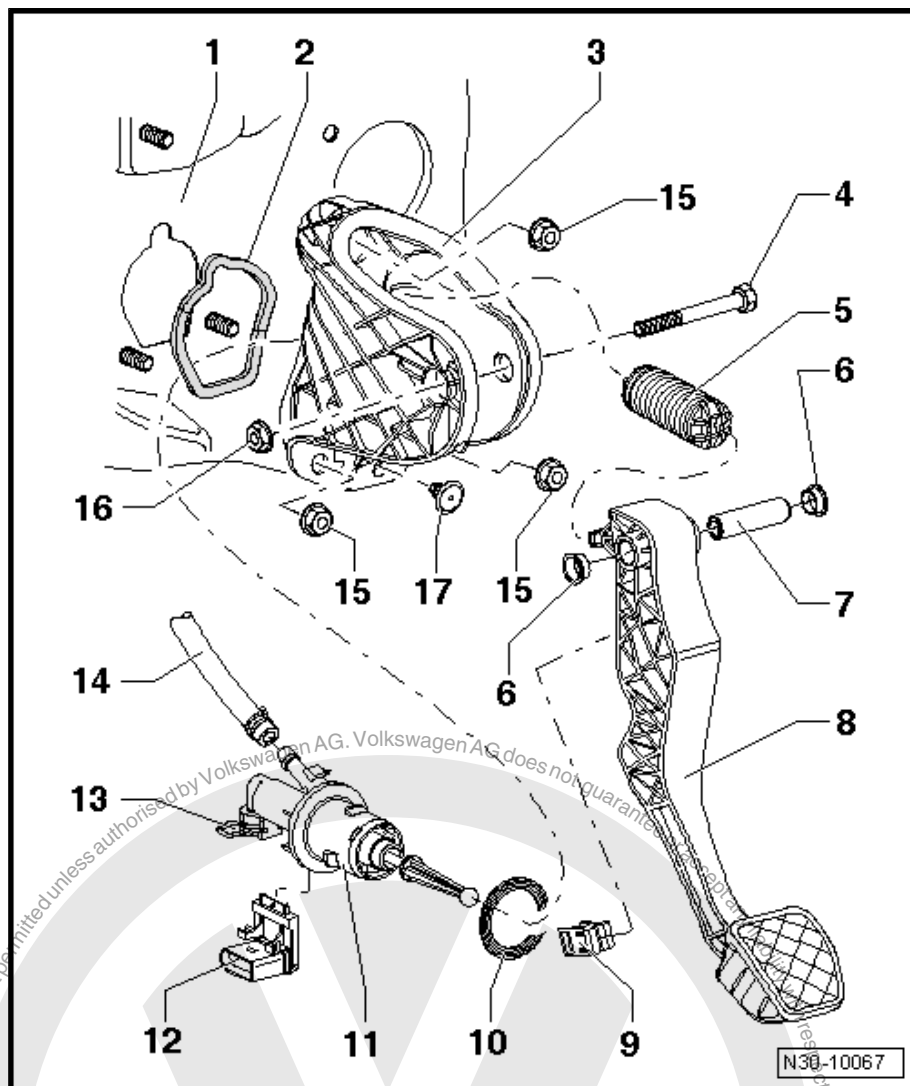
- ☐ Always replace.
- ☐ Between the clutch master cylinder and the mounting bracket

11 - Clutch Master Cylinder

- ☐ Removing and installing after removing the mounting bracket. Refer to [⇒ "1.5 Mounting Bracket, Removing and Installing", page 28](#)

12 - Clutch Position Sensor - G476-

- ☐ Removing and Installing. Refer to [⇒ "1.7 Clutch Position Sensor G476 , Removing and Installing", page 35](#) .
- ☐ Can be checked in "Guided Fault Finding" using the Vehicle Diagnostic Tester ⇒ Vehicle diagnostic tester
- ☐ The Clutch Position Sensor - G476- is called the Clutch Pedal Switch - F36- in "Guided Fault Finding".





13 - Clamp

- ☐ The clamp must be removed in order to remove/install the hose/line assembly

14 - Hose

- ☐ Rubber
- ☐ Made of plastic from 12/2005. Refer to [⇒ Fig. "Plastic Hose -1- ", page 39](#)

15 - Hex Nut

- ☐ 25 Nm
- ☐ Always replace.
- ☐ Self-locking
- ☐ Quantity: 3
- ☐ For the mounting bracket to the bulkhead

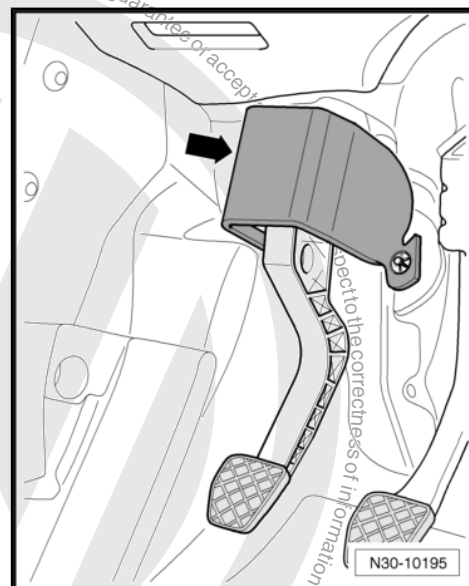
16 - Hex Nut

- ☐ 25 Nm
- ☐ Always replace.

17 - Stop

- ☐ For the clutch pedal

Mounting Bracket with Damper -arrow-



1.3 Over-Center Spring, Removing and Installing

[⇒ "1.3.1 Removing", page 17](#)

[⇒ "1.3.2 Installing", page 20](#)

[⇒ "1.3.3 Tightening Specifications", page 22](#)

1.3.1 Removing

Special tools and workshop equipment required

- ◆ Over-Center Spring Assembly Tool - T10178-



Perform the following procedure:

Vehicles with Knee Airbag



Note

The knee airbag is installed above the foot pedal assembly.

- Determine whether a coded radio is installed. If so, obtain the anti-theft code.
- Disconnect the battery ground cable with the ignition switched off. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .

Continuation for All

- Move the driver seat all the way back and raise the steering wheel to the highest position.
- Remove the trim and the cover under the trim on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 .

Vehicles with Knee Airbag

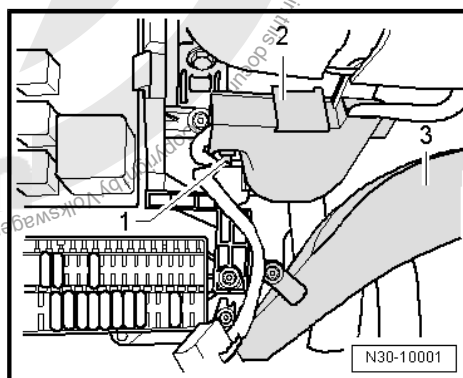
- Remove the knee airbag bracket and the crash bolster. Refer to ⇒ Body Interior; Rep. Gr. 69 .

Continuation for All

- Remove the cable guide -2- from the steering column.
- Remove the footwell vents -3-. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 80 ; Heating, Servicing; Vents, Removing, Jetta from MY 2011.

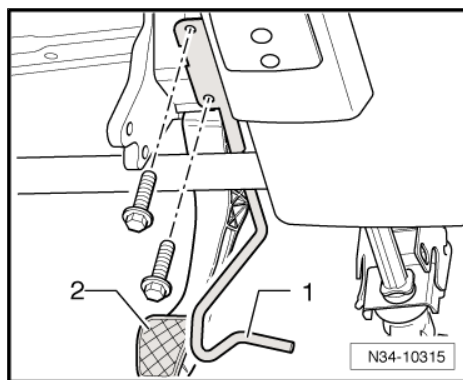
Vehicles without Knee Airbag

There are different ways of securing the impact bolster -1- in front of the clutch pedal -2-. The crash bolster may look different than what is shown in the following illustrations.



Securing with Two Bolts

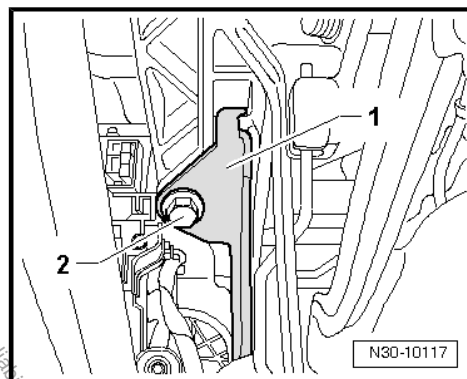
- Remove the crash bolster -1- (2 bolts).



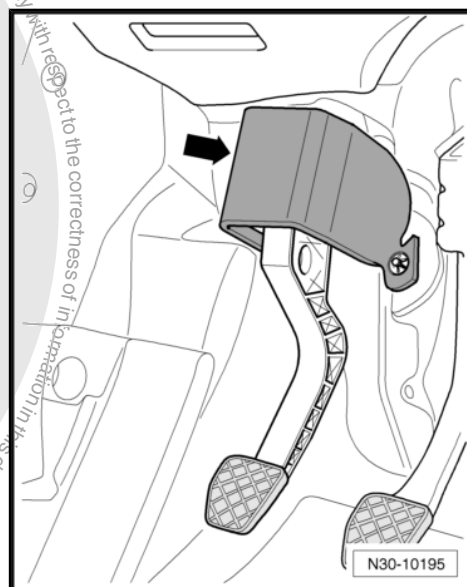


Securing with One Bolt

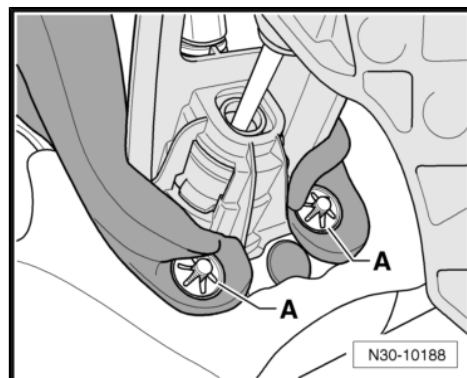
- Remove the crash bolster -1- (1 bolt -2-).



- Remove the damper -arrow- at the bottom of the mounting bracket/clutch pedal, if equipped.

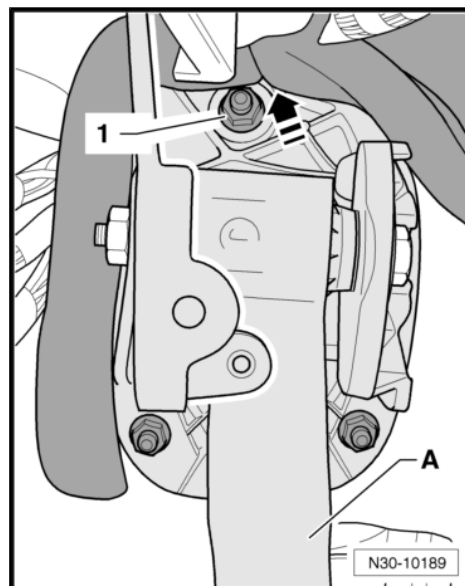


- Remove the washers -A- for the damper.
- Remove the damper.





- Push the damper near the upper nut -1- above the clutch pedal -A- upward in the direction of the -arrow-.



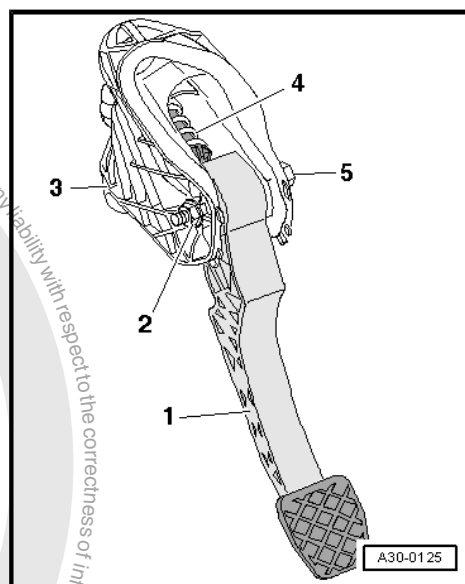
- Remove the nut -2- and the bolt -5- and then remove the clutch pedal -1- from the mounting bracket -3-.



Note

The clutch pedal remains engaged in the clutch master cylinder actuator rod.

- Swivel the clutch pedal slightly downward and remove the over-center spring -4- from the mounting bracket.



1.3.2 Installing

Install in reverse order of removal while. Note the following:

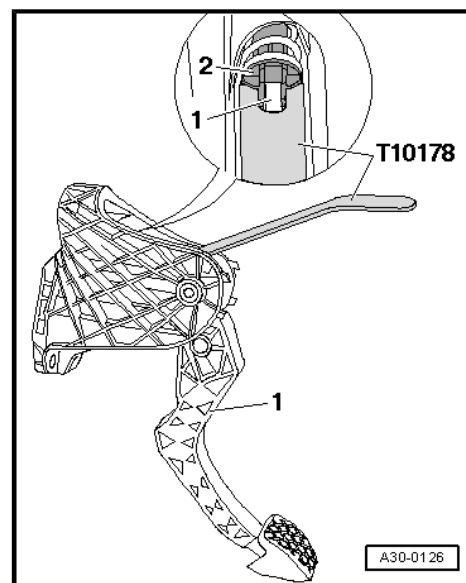


Note

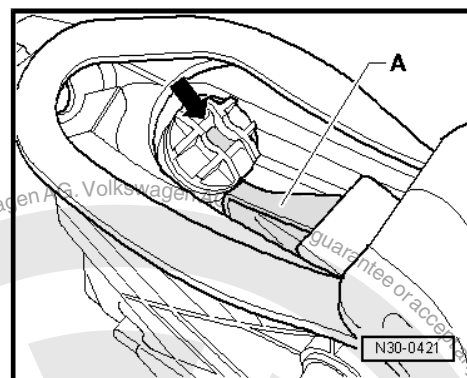
Replace the self-locking nuts.



- Install the over-center spring -2- in the mounting bracket from the top. Hold the end of the spring in its installed position with Over-Center Spring Assembly Tool - T10178- when installing the spring.



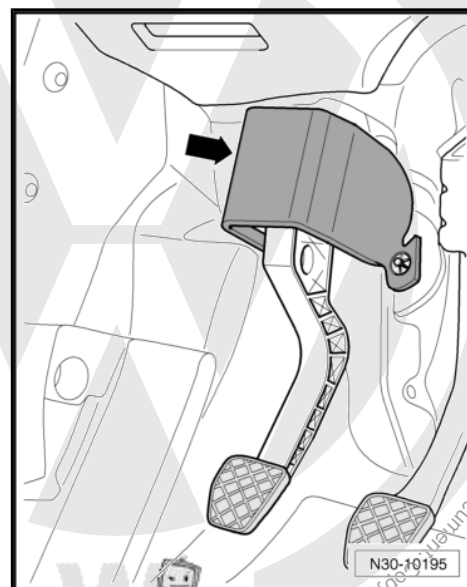
- The mounting area -arrow- for the clutch pedal pivot pin -A- must be positioned vertically.
- Insert the clutch pedal pivot pin into the mounting cup of the over-center spring.
- Press the clutch pedal slightly, push the bolt through and tighten the self-locking nut to the tightening specification. Refer to [⇒ "1.3.3 Tightening Specifications", page 22](#).



Some vehicles have a damper -arrow- on the mounting bracket/ clutch pedal.

- Bring it back into its installed position.

Vehicles without Knee Airbag

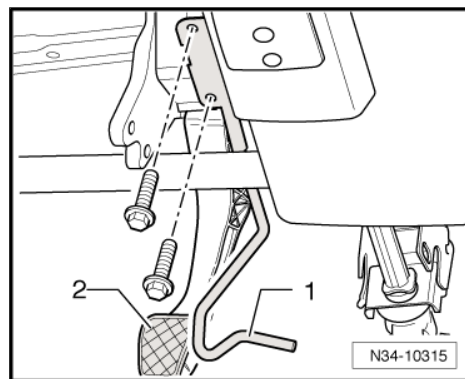




There are different ways of securing the impact bolster -1- in front of the clutch pedal -2-.

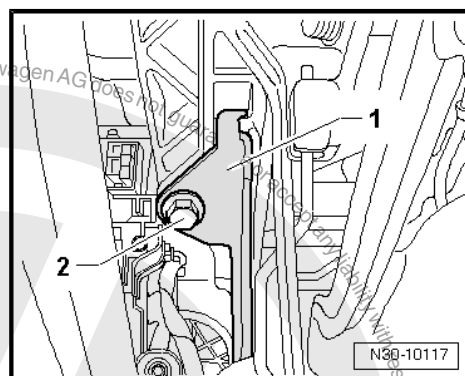
Securing with Two Bolts

- Install the crash bolster -1- and tighten the 2 bolts to the tightening specification. Refer to
⇒ [“1.3.3 Tightening Specifications”, page 22](#) .



Securing with One Bolt

- Install the crash bolster -1- and tighten the bolt -2- to the tightening specification. Refer to
⇒ [“1.3.3 Tightening Specifications”, page 22](#) .

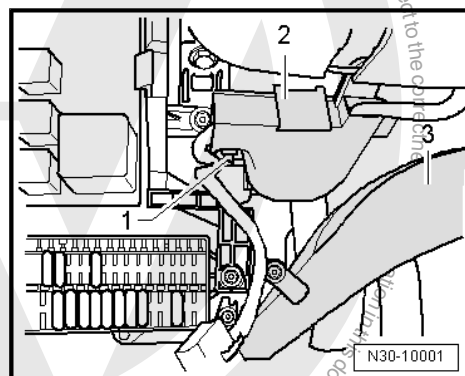


Continuation for All

- Attach the cable guide -2- to the steering column.
- Install the footwell vents -3-. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 80 ; Heating, Servicing; Vents, Removing, Jetta from MY 2011 .

Vehicles with Knee Airbag

- Install the knee airbag bracket and the crash bolster. Refer to
⇒ Body Interior; Rep. Gr. 69 .



Continuation for All

- Install the trim and the cover under the trim on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 .
- If disconnected, connect the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .

1.3.3 Tightening Specifications

Component	Nm
Clutch pedal to mounting bracket ♦ Replace the self-locking nuts.	25
Impact bolster to mounting bracket/steering column (secured with two bolts)	10
Impact bolster to mounting bracket/steering column (secured with one bolt)	20
♦ Replace the impact bolster bolts	



1.4 Clutch Pedal, Removing and Installing

⇒ ["1.4.1 Removing", page 23](#)

⇒ ["1.4.2 Installing", page 25](#)

⇒ ["1.4.3 Tightening Specifications", page 28](#)

1.4.1 Removing

Special tools and workshop equipment required

- ◆ Clutch Pedal Pliers - T10005-
- ◆ Over-Center Spring Assembly Tool - T10178-

Perform the following procedure:

Vehicles with Knee Airbag



Note

The knee airbag is installed above the foot pedal assembly.

- Determine whether a coded radio is installed. If so, obtain the anti-theft code.
- Disconnect the battery ground cable with the ignition switched off. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery, Battery, Disconnecting and Connecting .

Continuation for All

- Move the driver seat all the way back and raise the steering wheel to the highest position.
- Remove the trim and the cover under the trim on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 .

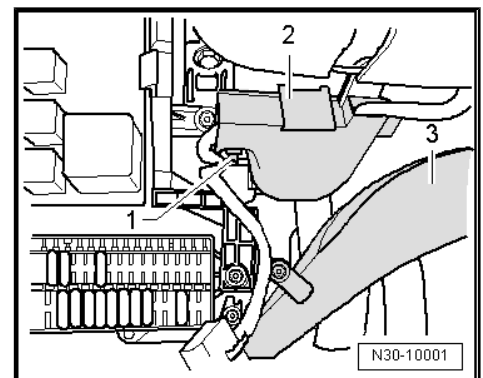
Vehicles with Knee Airbag

- Remove the knee airbag bracket and the crash bolster. Refer to ⇒ Body Interior; Rep. Gr. 69 .

Continuation for All

- Remove the cable guide -2- from the steering column.
- Remove the footwell vents -3-. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 80 ; Heating, Servicing; Vents, Removing, Jetta from MY 2011 .

Vehicles without Knee Airbag

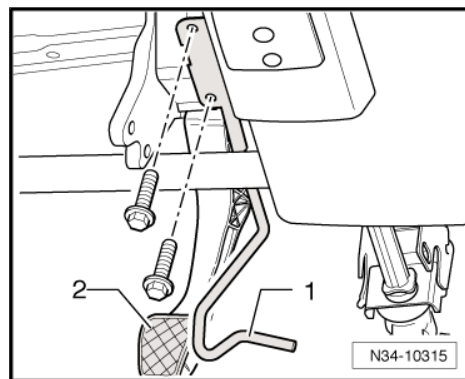




There are different ways of securing the impact bolster -1- in front of the clutch pedal -2-. The crash bolster may look different than what is shown in the following illustrations.

Securing with Two Bolts

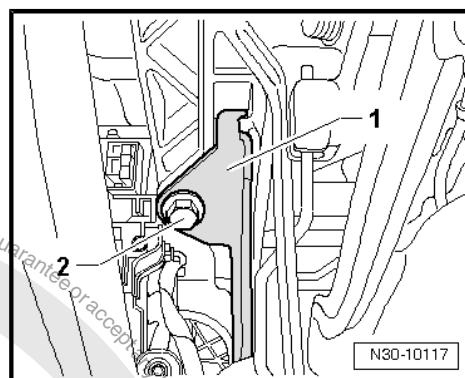
- Remove the crash bolster -1- (2 bolts).



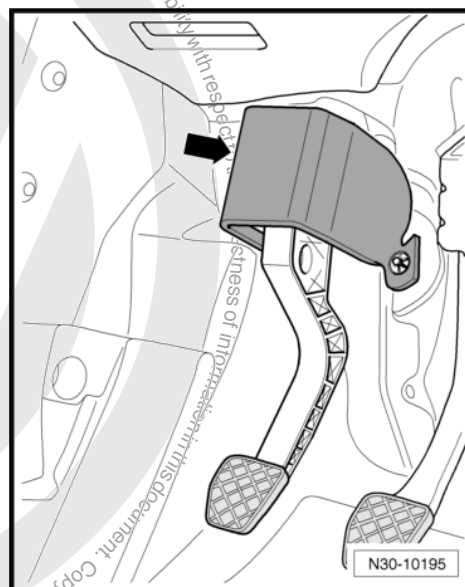
Securing with One Bolt

- Remove the crash bolster -1- (1 bolt -2-).

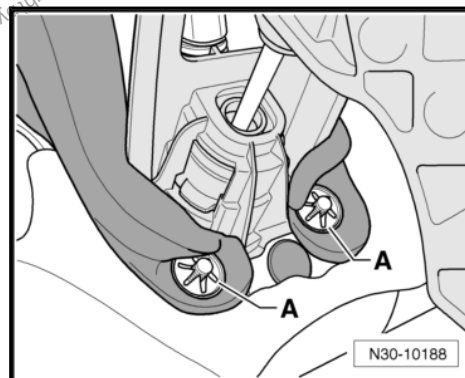
Continuation for All



- Remove the damper -arrow- at the bottom of the mounting bracket/clutch pedal, if equipped.

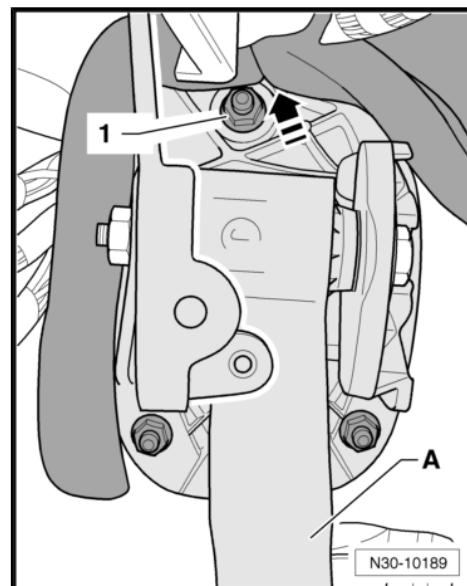


- Remove the washers -A- for the damper.
- Remove the damper.

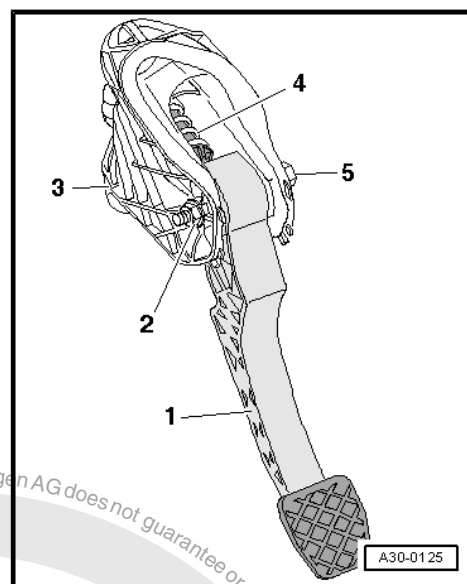




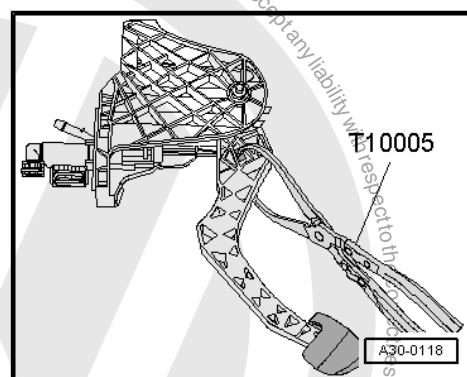
- Push the damper near the upper nut -1- above the clutch pedal -A- upward in the direction of the -arrow-.



- Remove the nut -2- and bolt -5- and then remove the clutch pedal -1- from the mounting bracket -3-.
- Swivel the clutch pedal slightly downward and remove the over-center spring -4- from the mounting bracket.



- Release the clutch pedal from clutch master cylinder using the Clutch Pedal Pliers - T10005-
- Remove the clutch pedal.



1.4.2 Installing

Install in reverse order of removal while. Note the following:



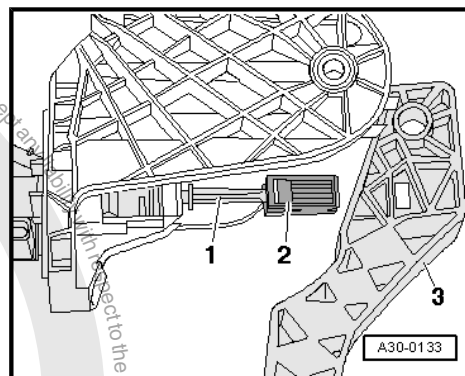
Note

Replace the self-locking nuts.

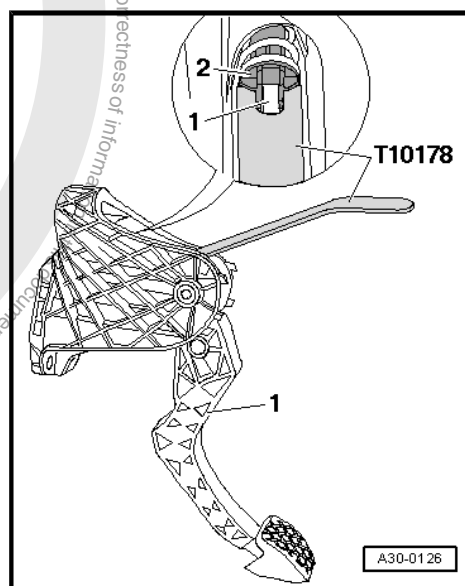




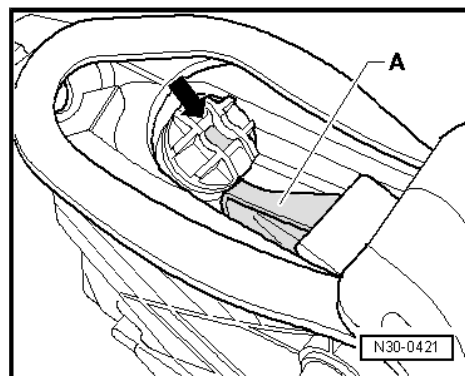
- Attach the mount -2- to the clutch master cylinder actuator rod -1-.
- Press the mounting in until it engages audibly in the clutch pedal -3- opening.



- Install the over-center spring -2- in the mounting bracket from the top. Hold the end of the spring in its installed position with Over-Center Spring Assembly Tool - T10178- when installing the spring.



- The mounting area -arrow- for the clutch pedal pivot pin -A- must be positioned vertically.
- Insert the clutch pedal pivot pin -A- into the mounting cup of the over-center spring.
- Press the clutch pedal slightly, push the bolt through and tighten the self-locking nut to the tightening specification. Refer to [⇒ "1.4.3 Tightening Specifications", page 28](#) .

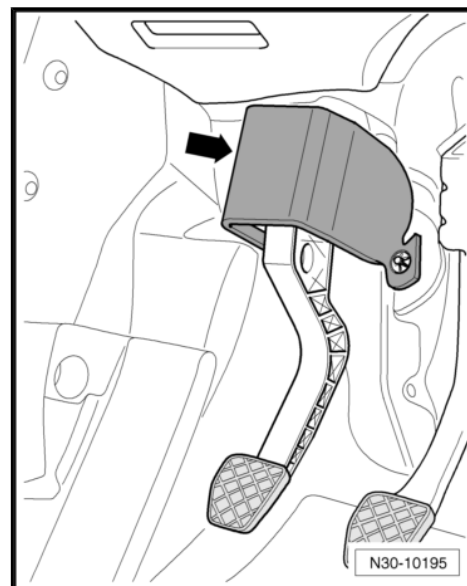




Some vehicles have a damper -arrow- on the mounting bracket/ clutch pedal.

- Bring it back into its installed position.

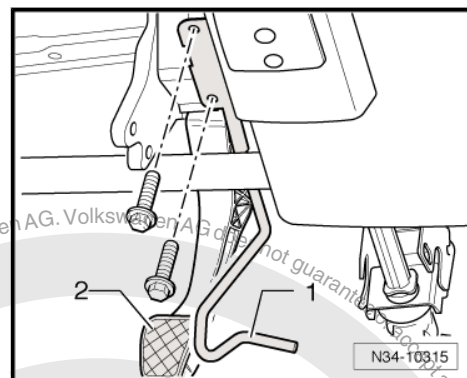
Vehicles without Knee Airbag



There are different ways of securing the impact bolster -1- in front of the clutch pedal -2-.

Securing with Two Bolts

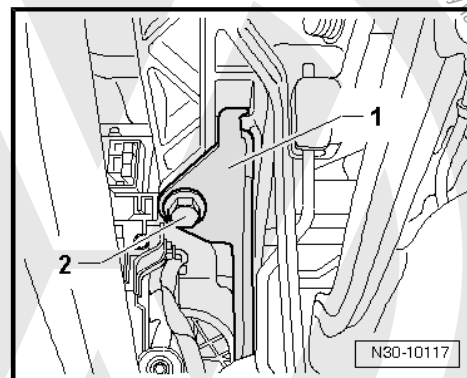
- Install the crash bolster -1- and tighten the 2 bolts to the tightening specification. Refer to [⇒ "1.4.3 Tightening Specifications", page 28](#).



Securing with One Bolt

- Install the crash bolster -1- and tighten the bolt -2- to the tightening specification. Refer to [⇒ "1.4.3 Tightening Specifications", page 28](#).

Continuation for All





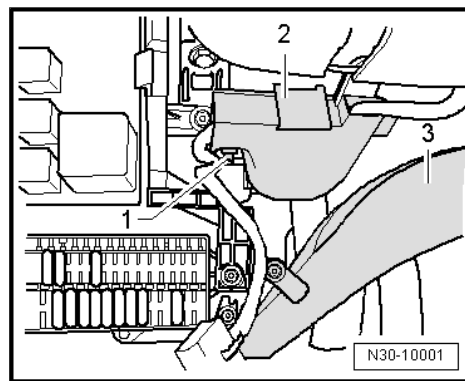
- Attach the cable guide -2- to the steering column.
- Install the footwell vents -3-. Refer to ➤ Heating, Ventilation and Air Conditioning; Rep. Gr. 80 ; Heating, Servicing; Vents, Removing, Jetta from MY 2011 .

Vehicles with Knee Airbag

- Install the knee airbag bracket and the crash bolster. Refer to ➤ Body Interior; Rep. Gr. 69 .

Continuation for All

- Install the trim and the cover under the trim on the driver side. Refer to ➤ Body Interior; Rep. Gr. 68 .
- If disconnected, connect the battery. Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .



1.4.3 Tightening Specifications

Component	Nm
Clutch pedal to mounting bracket ♦ Replace the self-locking nuts.	25
Impact bolster to mounting bracket/steering column (secured with two bolts)	10
Impact bolster to mounting bracket/steering column (secured with one bolt)	20
♦ Replace the impact bolster bolts	

1.5 Mounting Bracket, Removing and Installing

⇒ [“1.5.1 Removing”, page 28](#)

⇒ [“1.5.2 Installing”, page 31](#)

⇒ [“1.5.3 Tightening Specifications”, page 33](#)

1.5.1 Removing

Special tools and workshop equipment required

- ♦ Hose Clamps - Up To 25mm - 3094-
- ♦ Hose Clip Pliers - VAS6362-
- ♦ Sealing Tool - T10249-

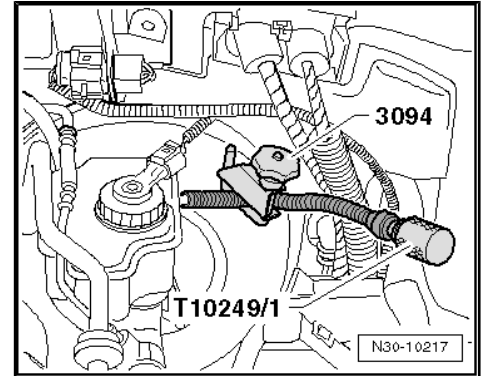
Perform the following procedure:

- Determine whether a coded radio is installed. If so, obtain the anti-theft code.
- Disconnect the battery ground cable with the ignition switched off. Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Remove the air filter housing if it is located near the battery. Refer to ➤ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing or ➤ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .
- Remove the battery and the battery tray. Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .

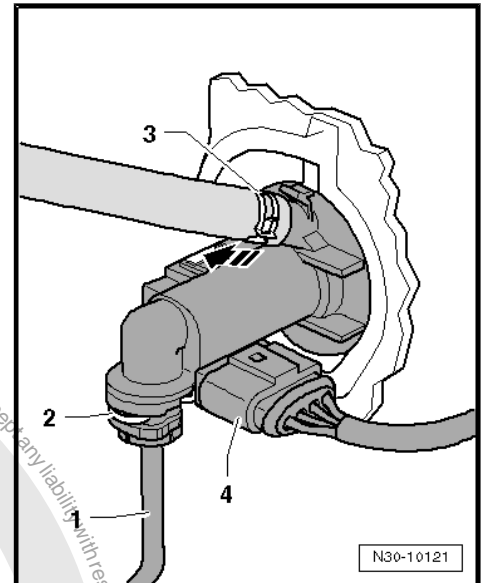


Note

- ◆ *Be careful not to get any brake fluid on the longitudinal member or on the transmission when performing the following work. If it does, clean the area thoroughly.*
- ◆ *Place a lint-free cloth under the clutch master cylinder.*
- Clamp the supply hose to the clutch master cylinder using Hose Clamps - Up To 25mm - 3094- .



- Loosen the spring clamp -3- using the Hose Clip Pliers - VAS6362- and remove the supply hose from the clutch master cylinder.
- Moreover, for disconnecting, seal it with Sealing Tool - T10249/1- (⇒ top illustration).
- Pull out the clip -2- using a screwdriver or a pointed tool and then pull the hose/line assembly or plastic hose -1- out of the master cylinder.
- Unclip the Clutch Position Sensor - G476- from the clutch master cylinder -arrow- and remove it with the connector -4- still connected.



Note

When working inside the footwell, cover the carpet with cloths to protect it from leaking brake fluid.

- Remove the trim and the cover under the trim on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 .

Vehicles with Knee Airbag



Note

The knee airbag is installed above the foot pedal assembly.



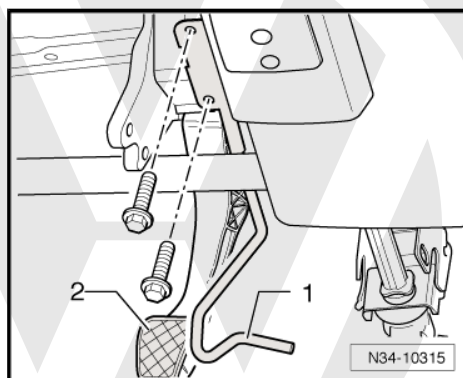
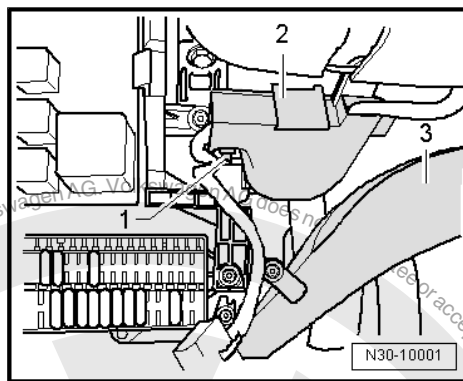
- Remove the knee airbag bracket and the crash bolster. Refer to ➔ Body Interior; Rep. Gr. 69 .
- Remove the cable guide -2- from the steering column.
- Remove the footwell vents -3-. Refer to ➔ Heating, Ventilation and Air Conditioning; Rep. Gr. 80 ; Heating, Servicing; Vents, Removing, Jetta from MY 2011 .

Vehicles without Knee Airbag

There are different ways of securing the impact bolster -1- in front of the clutch pedal -2-. The crash bolster may look different than what is shown in the following illustrations.

Securing with Two Bolts

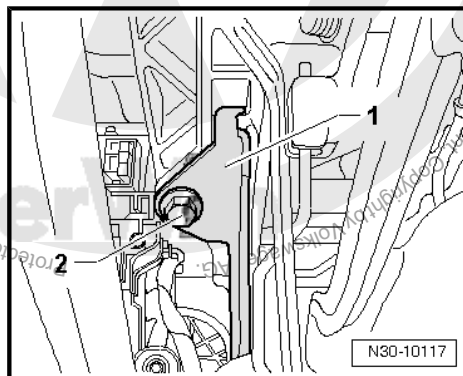
- Remove the crash bolster (2 bolts).



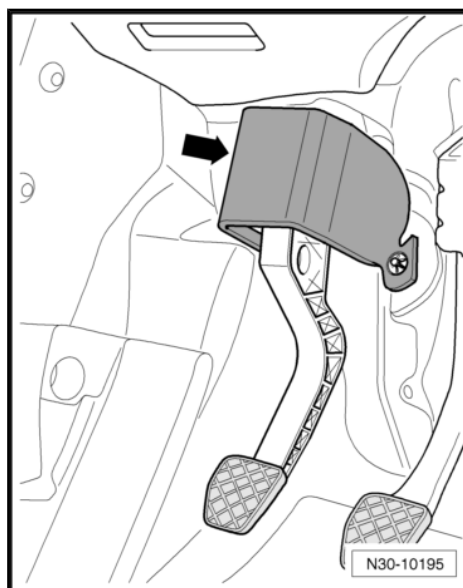
Securing with One Bolt

- Remove the crash bolster -1- (1 bolt -2-).

Continuation for All

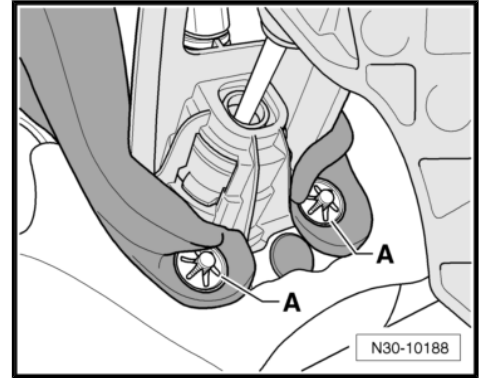


- Remove the damper -arrow- at the bottom of the mounting bracket/clutch pedal, if equipped.

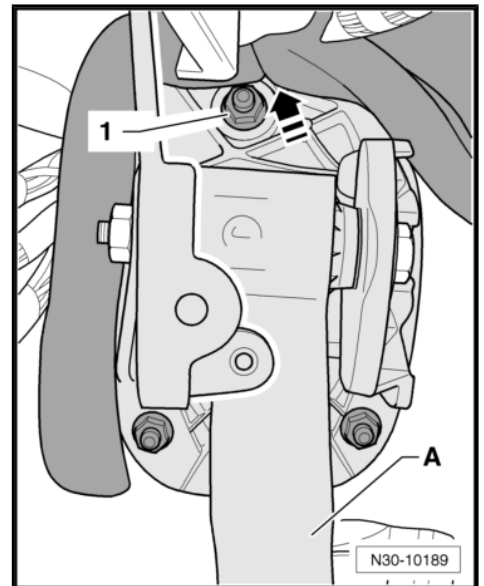




- Remove the washers -A- for the damper.
- Remove the damper.



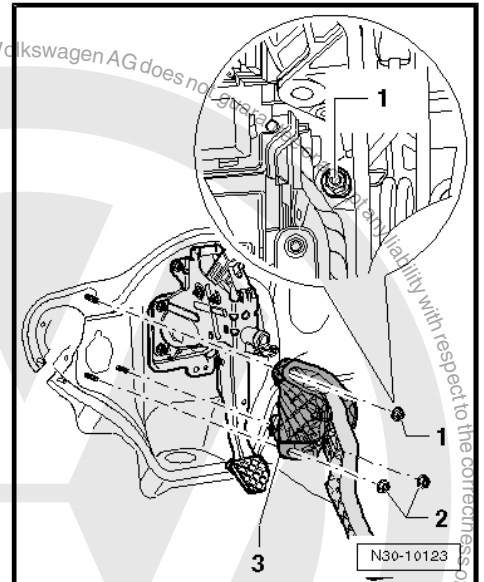
- Push the damper near the upper nut -1- above the clutch pedal -A- upward in the direction of the -arrow-.



- Remove the nuts -1 and 2-.

The upper nut -1- is accessible between the relay panel and steering column trim.

- Remove the mounting bracket -3-.



1.5.2 Installing

Install in reverse order of removal while. Note the following:





Some vehicles have a damper -arrow- on the mounting bracket/ clutch pedal.



Note

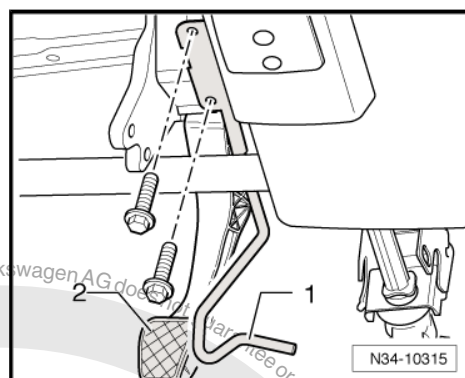
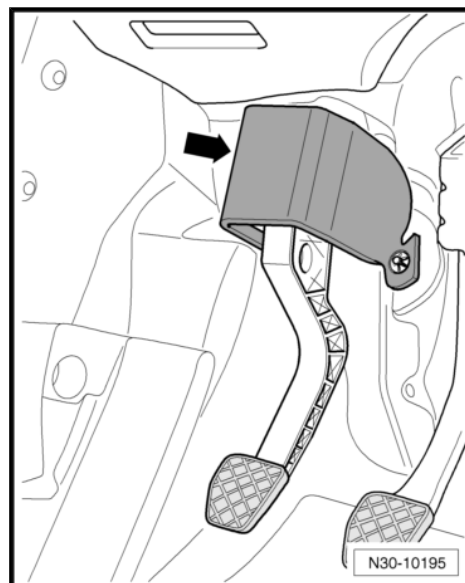
- ◆ Replace the self-locking nuts.
- ◆ Replace the hose clamps
- ◆ Allocate all components according to the Parts Catalog.

Vehicles without Knee Airbag

There are different ways of securing the impact bolster -1- in front of the clutch pedal -2-.

Securing with Two Bolts

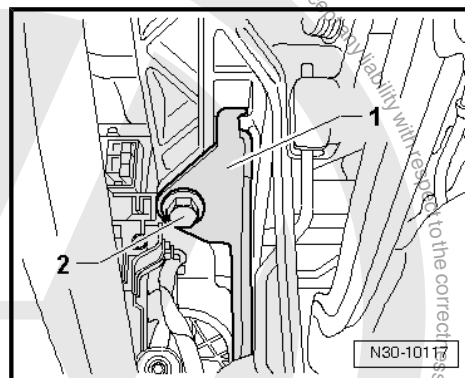
- Install the crash bolster -1- and tighten the 2 bolts to the tightening specification. Refer to
⇒ ["1.5.3 Tightening Specifications", page 33](#) .



Securing with One Bolt

- Install the crash bolster -1- and tighten the bolt -2- to the tightening specification. Refer to
⇒ ["1.5.3 Tightening Specifications", page 33](#) .

Continuation for All



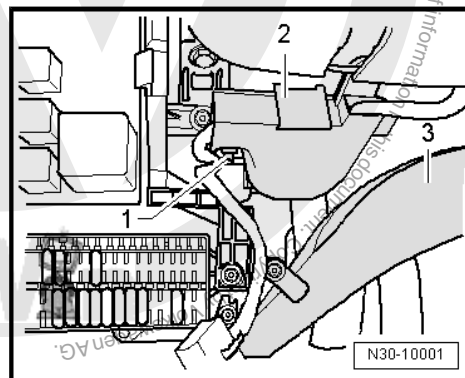
- Attach the cable guide -2- to the steering column.
- Install the footwell vents -3-. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 80 ; Heating, Servicing; Vents, Removing, Jetta from MY 2011

Vehicles with Knee Airbag

- Install the knee airbag bracket and the crash bolster. Refer to
⇒ Body Interior; Rep. Gr. 69 .

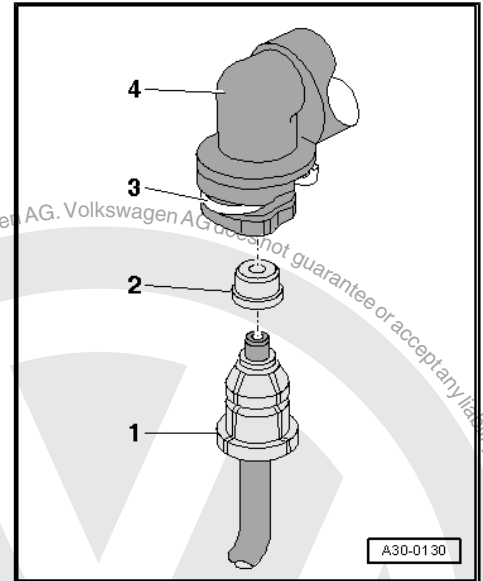
Continuation for All

- Install the trim and the cover under the trim on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 .





- Press the hose/line assembly or plastic line -1- into the master cylinder connection -4- with the new seal -2- until the clip -3- audibly locks into place.
- Pull on the line to make sure it is secure.
- After removing the Hose Clamps - Up To 25mm - 3094- , return the hose back to its original shape if necessary.
- Bleed the clutch system. Refer to
⇒ [“1.11 Clutch System, Bleeding”, page 44](#) .
- Install the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing
- If removed, install the air filter housing. Refer to ⇒ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing or ⇒ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .



1.5.3 Tightening Specifications

Component	Nm
Mounting bracket to bulkhead ◆ Replace the self-locking nuts.	25
Impact bolster to mounting bracket/steering column (secured with two bolts)	10
Impact bolster to mounting bracket/steering column (secured with one bolt)	20
◆ Replace the impact bolster bolts	

1.6 Clutch Master Cylinder, Removing and Installing

⇒ [“1.6.1 Removing”, page 33](#)

⇒ [“1.6.2 Installing”, page 34](#)

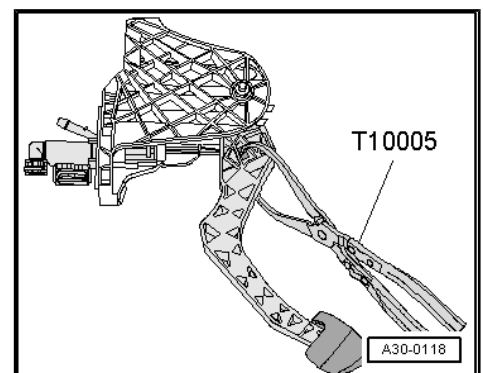
1.6.1 Removing

Special tools and workshop equipment required

- ◆ Clutch Pedal Pliers - T10005-

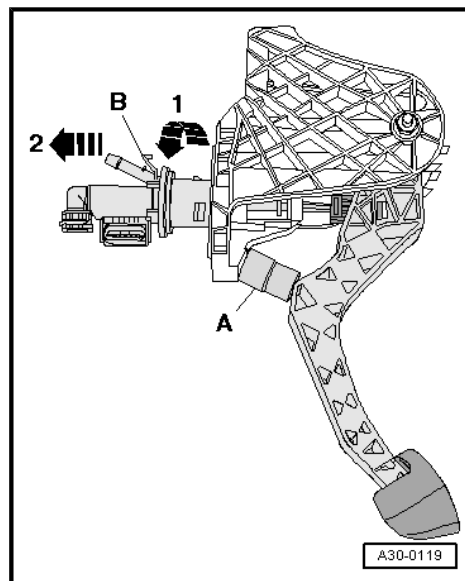
Perform the following procedure:

- Remove the mounting bracket. Refer to
⇒ [“1.5 Mounting Bracket, Removing and Installing”, page 28](#) .
- Release the mount for the clutch master cylinder actuator rod using the Clutch Pedal Pliers - T10005- .



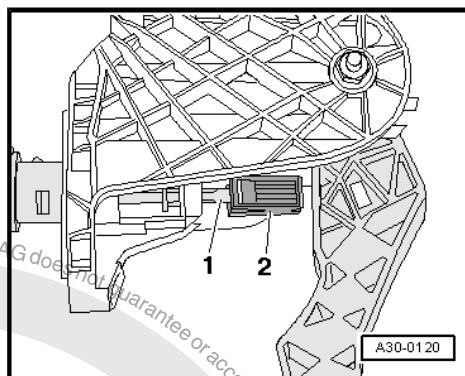


- Place a spacer -A- between the clutch pedal and the stop and push the clutch pedal down as far as the spacer.
- ◆ Spacer length = approximately 40 mm (for example, $\frac{1}{2}$ socket insert)
- Unlock the securing clip -B- and remove the clutch master cylinder from the mounting bracket -arrows 1 and 2-.

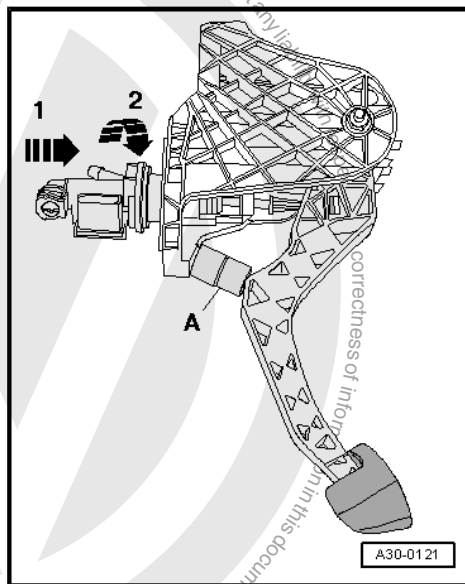


1.6.2 Installing

- Move the clutch pedal into its rest position.
- Attach the mount -2- to the clutch master cylinder actuator rod -1-.

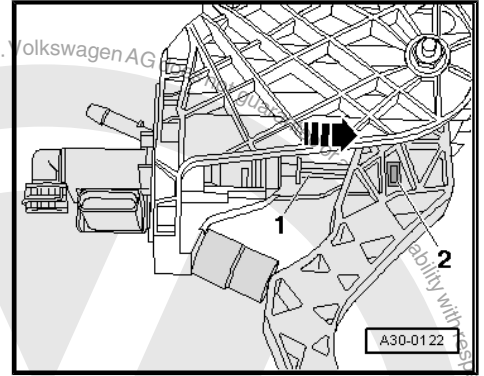


- Place a spacer -A- between the clutch pedal and the stop and push the clutch pedal down as far as the spacer.
- ◆ Spacer length = approximately 40 mm (for example, $\frac{1}{2}$ socket insert)
- Lock the clutch master cylinder to the mounting bracket -arrow 1 and arrow 2-





- Push the clutch master cylinder actuator rod -1- in direction of -arrow- until the mount -2- audibly engages inside the clutch pedal.
- Install the mounting bracket. Refer to
⇒ [“1.5 Mounting Bracket, Removing and Installing”, page 28](#).



1.7 Clutch Position Sensor - G476- , Removing and Installing

⇒ [“1.7.1 Removing”, page 35](#)

⇒ [“1.7.2 Installing”, page 36](#)

1.7.1 Removing

Special tools and workshop equipment required

- ◆ Hose Clamps - Up To 25mm - 3094

Perform the Following Procedure:

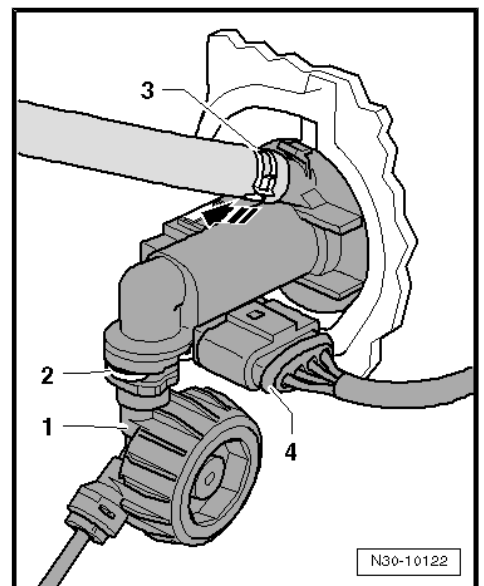
- Determine whether a coded radio is installed. If so, obtain the anti-theft code.
- Disconnect the battery ground cable with the ignition switched off. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Remove the air filter housing if it is located near the battery. Refer to ⇒ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing or ⇒ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .
- Remove the battery and the battery tray. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .

If a hose/line assembly -1- with a round component is installed directly below the clutch master cylinder, hose/line assembly must be removed.



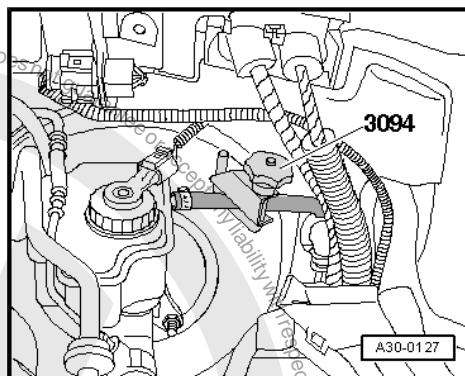
Note

Be careful not to get any brake fluid on the longitudinal member or on the transmission when performing the following work. If it does, clean the areas thoroughly.

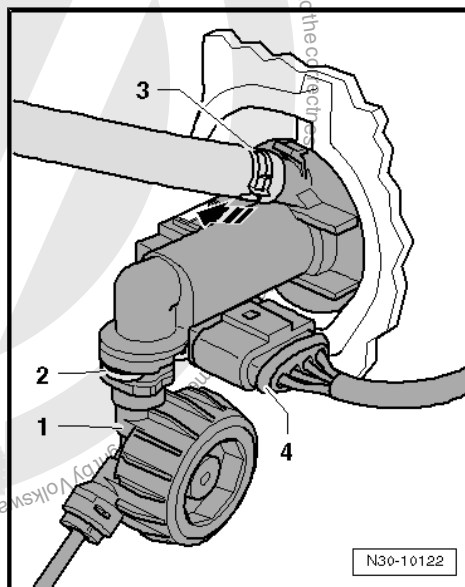




- Clamp the supply hose to the clutch master cylinder using Hose Clamps - Up To 25mm - 3094- .



- Disengage the clamp -2- using a screwdriver or a pointed tool and pull the clutch master cylinder out until it stops.
- Disconnect the hose/line assembly -1- or plastic line from the clutch master cylinder and seal it.
- Disconnect the connector -4-.
- Unclip the Clutch Position Sensor - G476- from the clutch master cylinder -arrow- and remove it.



1.7.2 Installing

Install in reverse order of removal while. Note the following:



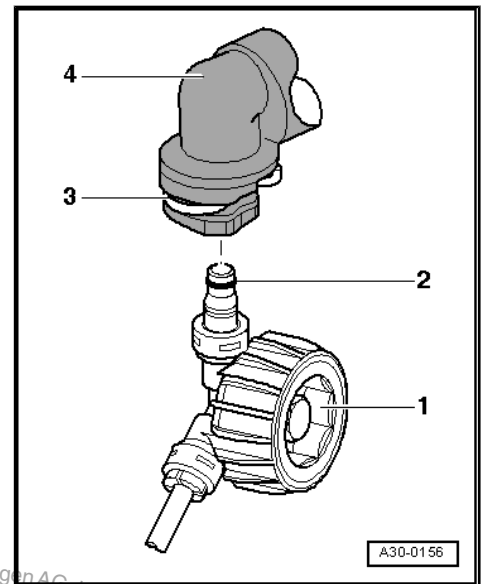
Note

Allocate all components according to the Parts Catalog.



If the Hose/Line Assembly was Removed:

- Install hose/line assembly -1- or plastic line with new seal -2- on the master cylinder connection -4- until clip -3- audibly engages.
- Pull on the hose/line assembly or plastic line to make sure it is secure.
- After removing the Hose Clamps - Up To 25mm - 3094- , return the hose back to its original shape if necessary.
- Bleed the clutch system. Refer to [⇒ "1.11 Clutch System, Bleeding", page 44](#) .
- Install the battery tray and the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .
- If removed, install the air filter housing. Refer to ⇒ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing or ⇒ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .
- Connect the battery and follow the procedure regarding what to do after connecting a battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .



1.8 Overview - Hydraulics



1 - Brake Fluid Reservoir

2 - Spring Clamp

- ☐ Not on all vehicles

3 - Hose

- ☐ Rubber
- ☐ Made of plastic from 12/2005. Refer to
⇒ [Fig. "Plastic Hose -1-""](#), page 39

4 - Clutch Master Cylinder

- ☐ Removing and Installing. Refer to
⇒ ["1.6 Clutch Master Cylinder, Removing and Installing"](#), page 33 .

5 - Clamp

- ☐ The clamp must be removed in order to remove/install the hose/line assembly

6 - Support

- ☐ To remove and install, disconnect the clutch master cylinder from the clutch pedal. Refer to
⇒ ["1.4 Clutch Pedal, Removing and Installing"](#), page 23 .

7 - Clutch Pedal

- ☐ Removing and Installing. Refer to
⇒ ["1.4 Clutch Pedal, Removing and Installing"](#), page 23 .

8 - Hex Nut

- ☐ 25 Nm
- ☐ Always replace.
- ☐ For the mounting bracket to the bulkhead
- ☐ Self-locking
- ☐ Quantity: 3

9 - Seal/O-Ring

- ☐ Install on the line connection
- ☐ Install with brake fluid
- ☐ Seals/O-rings suitable for the line connection version. Refer to
⇒ [Fig. "Seals/O-rings for the Hose/Line Assemblies""](#), page 39
- ☐ Allocation. Refer to the Parts Catalog.

10 - Hose/Line Assembly

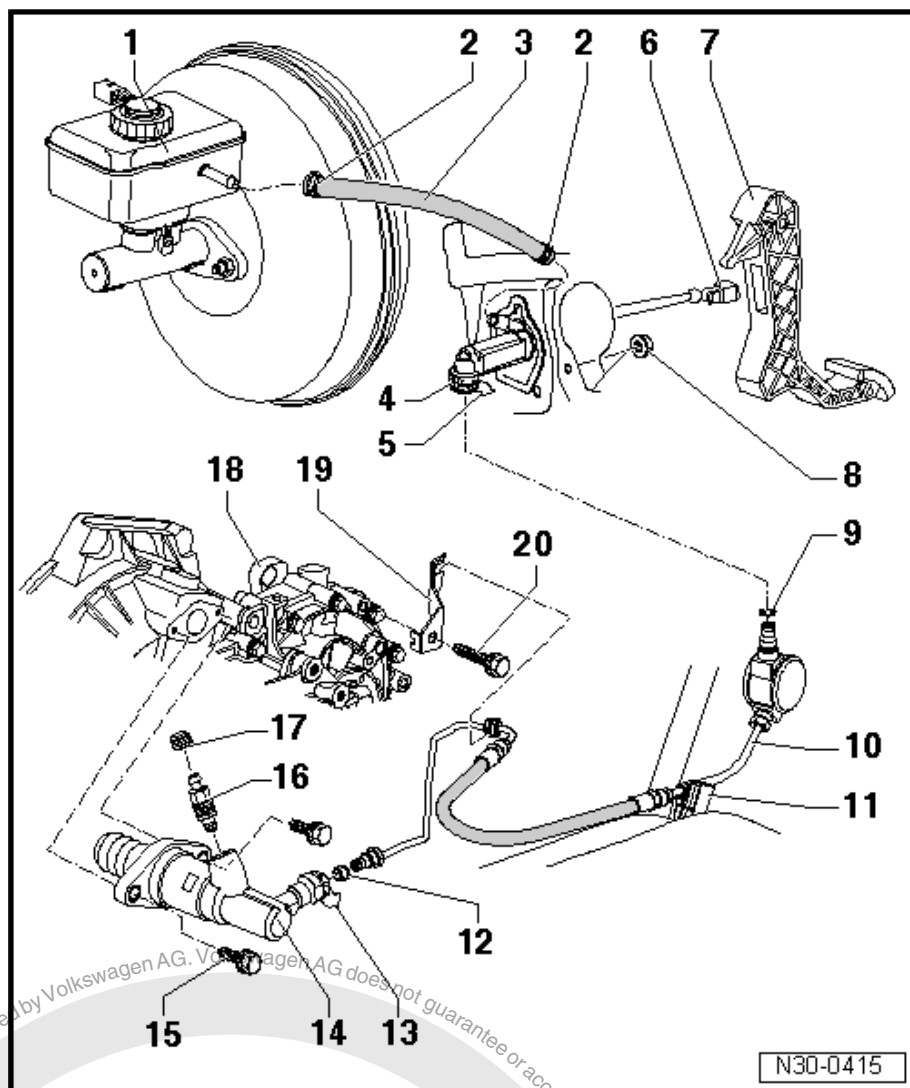
- ☐ Allocation. Refer to the Parts Catalog.
- ☐ To remove, remove the battery and battery tray. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .

11 - Bracket

- ☐ Attached to the body

12 - Seal/O-Ring

- ☐ Install on the line connection





- ☐ Install with brake fluid
- ☐ Seals/O-rings suitable for the line connection version. Refer to ➤ Fig. [“Seals/O-rings for the Hose/Line Assemblies”](#), page 39
- ☐ Allocation. Refer to the Parts Catalog.

13 - Clamp

- ☐ The clamp must be removed in order to remove/install the hose/line assembly

14 - Clutch Slave Cylinder

- ☐ Removing and Installing. Refer to ➤ [“1.10 Clutch Slave Cylinder, Removing and Installing”](#), page 41 .

15 - Hex Bolt

- ☐ 20 Nm

16 - Breather Valve

- ☐ Clutch System, Bleeding. Refer to ➤ [“1.11 Clutch System, Bleeding”](#), page 44 .

17 - Dust Cap

18 - Transmission

19 - Bracket

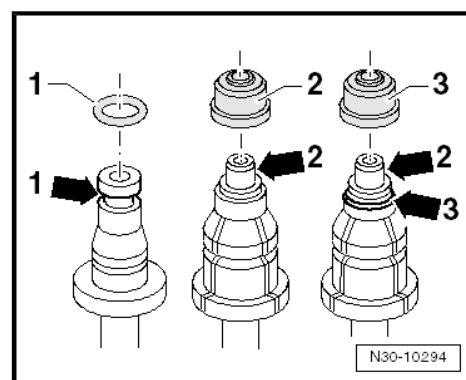
20 - Hex Bolt

- ☐ 20 Nm

Seals/O-rings for the Hose/Line Assemblies

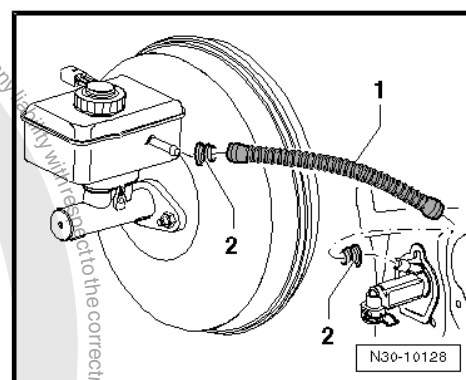
Item	Line connection version
1	Line connection with a groove all the way around -arrow 1-
2	Line connection with a shoulder -arrow 2-
3	Line connection with a shoulder -arrow 2- and with a groove all the way around -arrow 3-

- The seal / O-ring must be installed in the groove -arrow 1 and arrow 3-



Plastic Hose -1-

- The seals -2- must be inside the hose.





1.9 Overview - Hydraulics, RHD

1 - Brake Fluid Reservoir

2 - Seal

- ☐ For the plastic hose
- ☐ The seals must be inside the hose

3 - Hose

- ☐ rubber
- ☐ Made of plastic from 12/2005. Refer to
⇒ [Fig. "Plastic Hose -1-"" , page 39](#)

4 - Clutch Master Cylinder

- ☐ Removing and Installing. Refer to
⇒ ["1.6 Clutch Master Cylinder, Removing and Installing", page 33](#) .

5 - Clamp

- ☐ To remove and install the line, remove the clip up to the stop
- ☐ On some clutch master cylinders, it is pulled out on the side

6 - Seal/O-Ring

- ☐ Install on the line connection
- ☐ Install with brake fluid
- ☐ Seals/O-rings suitable for the line connection version. Refer to
⇒ [Fig. "Seals/O-rings for the Hose/Line Assemblies"" , page 39](#)

- ☐ Allocation. Refer to the ⇒ [Electronic Parts Catalog \(ETKA\)](#) .

7 - Support

- ☐ To remove and install, disconnect the clutch master cylinder from the clutch pedal. Refer to
⇒ ["1.4 Clutch Pedal, Removing and Installing", page 23](#) .

8 - Clutch Pedal

- ☐ Removing and Installing. Refer to ⇒ ["1.4 Clutch Pedal, Removing and Installing", page 23](#) .

9 - Hex Nut, 25 Nm

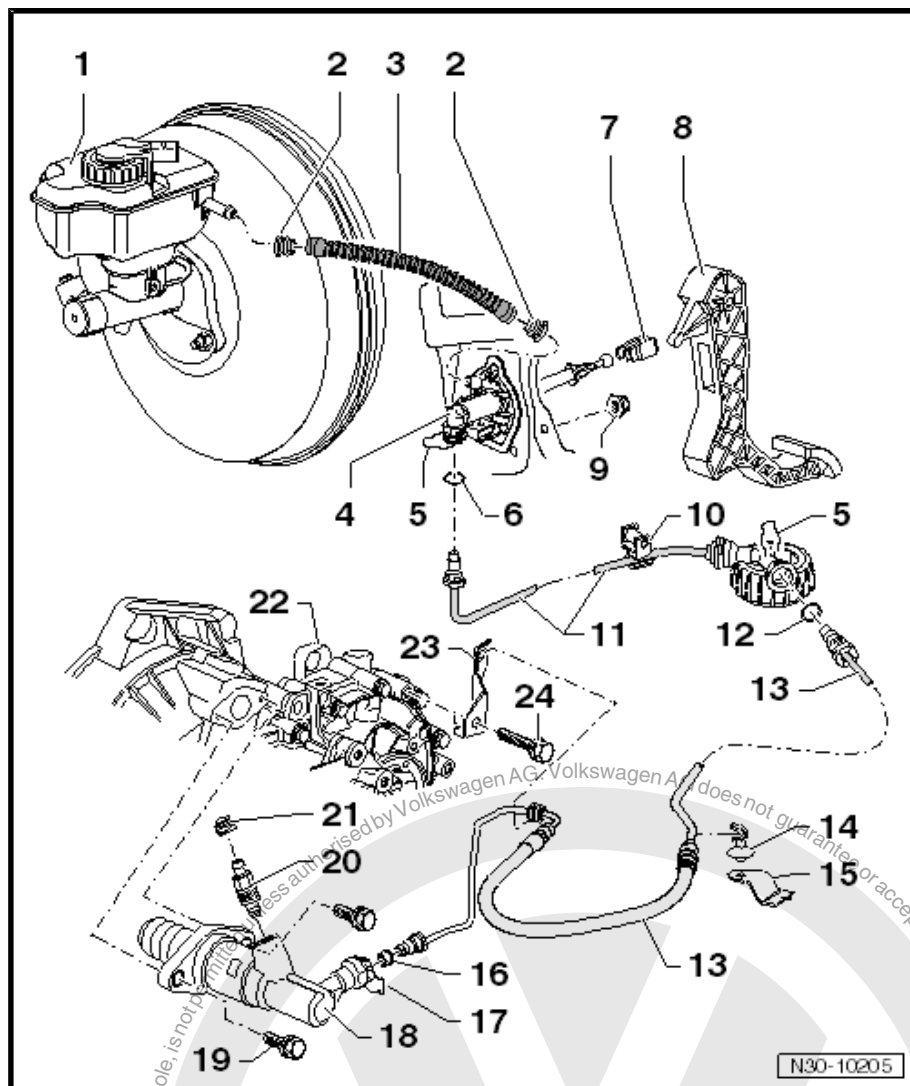
- ☐ Self-locking
- ☐ Quantity: 3
- ☐ For the mounting bracket to the bulkhead
- ☐ Always replace.

10 - Bracket

- ☐ Attached to the body

11 - Line

- ☐ The pipe line and pipe/hose line ⇒ [Item 13 \(page 41\)](#) may also be a single piece.
- ☐ Allocation. Refer to the ⇒ [Electronic Parts Catalog \(ETKA\)](#) .





- ☐ To remove, remove the battery and battery tray. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .

12 - Seal/O-Ring

- ☐ The pipe line and pipe/hose line ⇒ [Item 11 \(page 40\)](#) may also be a single piece.
- ☐ Install on the line connection
- ☐ Install with brake fluid
- ☐ Seals/O-rings suitable for the line connection version. Refer to ⇒ [Fig. "Seals/O-rings for the Hose/Line Assemblies", page 39](#)
- ☐ Allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA) .

13 - Hose/Line Assembly

- ☐ The pipe line and pipe/hose line ⇒ [Item 11 \(page 40\)](#) may also be a single piece.
- ☐ Allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA) .
- ☐ To remove, remove the battery and battery tray. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .

14 - Bracket

- ☐ Secured on the ABS/EDL bracket

15 - Bracket

- ☐ for ABS/EDL

16 - Seal/O-Ring

- ☐ Install on the line connection
- ☐ Install with brake fluid
- ☐ Seals/O-rings suitable for the line connection version. Refer to ⇒ [Fig. "Seals/O-rings for the Hose/Line Assemblies", page 39](#)
- ☐ Allocation. Refer to the ⇒ Electronic Parts Catalog (ETKA) .

17 - Clamp

- ☐ The clamp must be removed in order to remove/install the hose/line assembly

18 - Clutch Slave Cylinder

- ☐ Removing and Installing. Refer to ⇒ ["1.10 Clutch Slave Cylinder, Removing and Installing", page 41](#) .

19 - Collar bolt, 20 Nm

20 - Breather Valve

- ☐ Clutch System, Bleeding. Refer to ⇒ ["1.11 Clutch System, Bleeding", page 44](#) .

21 - Dust Cap

22 - Transmission

23 - Bracket

24 - Hex Bolt, 20 Nm

1.10 Clutch Slave Cylinder, Removing and Installing

⇒ ["1.10.1 Removing", page 41](#)

⇒ ["1.10.2 Installing", page 43](#)

⇒ ["1.10.3 Tightening Specifications", page 43](#)

1.10.1 Removing

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-



Perform the following procedure:

- Determine whether a coded radio is installed. If so, obtain the anti-theft code.
- Disconnect the battery ground cable with the ignition switched off. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Remove the complete air filter housing if it is located above the clutch slave cylinder. Refer to ⇒ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing or ⇒ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .
- Remove the shift cable lock washer -arrow 1- from the gear-shift lever -A-.
- Remove the shift cable from the pins.

Metal Relay Lever

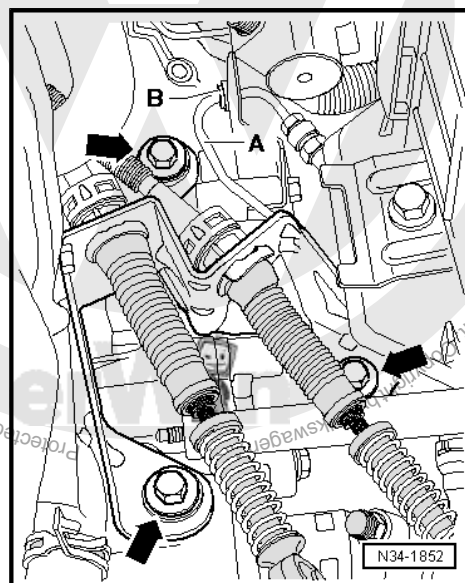
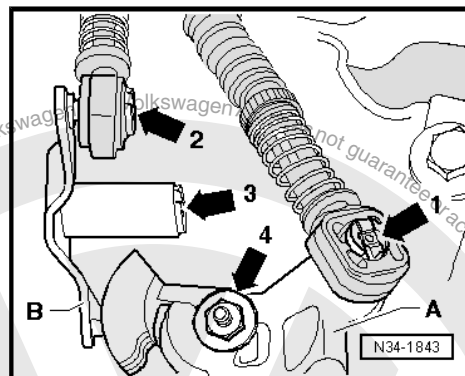
- Remove the selector cable circlip -2- from the relay lever -B-.
- Remove the selector cable from the pins.
- Remove the lock washer -arrow 3- from the relay lever -B- and then remove the relay lever.

Plastic Relay Lever

- Remove the relay lever together with the cable retainer from the transmission. Refer to
⇒ ["1.8 Plastic Relay Lever", page 77](#) .

Continuation for All

- Remove the nut -arrow 4- and then remove the transmission shift lever -A-.
- Remove the cable bracket from the transmission -arrows-.
- Tie up the shift cable and the selector cable.
- Remove the bracket -B- from the transmission and pull it off the hose/line assembly -A-.



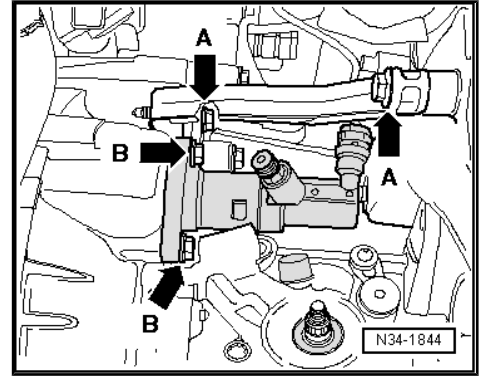


- Remove the transmission support -arrows A-.
- Place a lint-free cloth under the clutch slave cylinder.
- Remove the clip for the hose/line assembly all the way from the clutch slave cylinder.
- Remove the hose/line assembly from the clutch slave cylinder and seal it.
- Remove the clutch slave cylinder -B arrows-.



Caution

Do not press the clutch pedal anymore.



1.10.2 Installing

Install in reverse order of removal while. Note the following:

- Install the clutch slave cylinder and tighten the bolts -arrows B- to the tightening specification.
- Attach the hose/line assembly to the clutch slave cylinder.
- Push in the clamp for the hose/line assembly until it stops.
- Pull on the hose/line assembly to make sure it is secure.
- Install the transmission support -arrows A-.
- Bleed the clutch system after installing the clutch slave cylinder. Refer to ➤ [“1.11 Clutch System, Bleeding”, page 44](#).

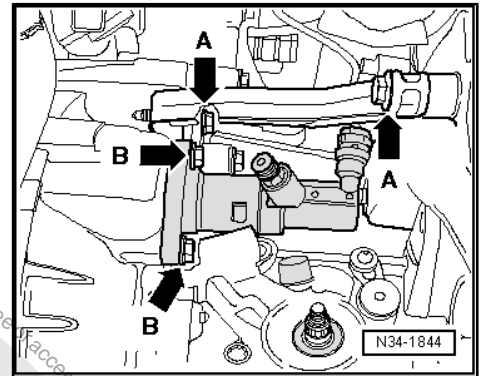
Assemble the gearshift mechanism. Refer to

➤ [“1.7 Overview - Operating Cables, Removing and Installing”, page 73](#).

Adjust the gearshift mechanism. Refer to

➤ [“1.11 Selector Mechanism, Adjusting”, page 85](#).

- If removed, install the air filter housing. Refer to ➤ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing or ➤ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing.
- Connect the battery ground cable. Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting.



1.10.3 Tightening Specifications

Clutch slave cylinder on the transmission. Refer to -item 9- ➤ [Item 9 \(page 46\)](#).

Transmission selector lever to selector shaft -item 18- ➤ [Item 18 \(page 76\)](#).

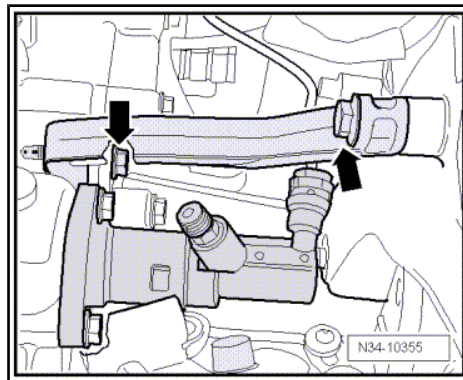
Cable mounting bracket to transmission. Refer to -item 6- ➤ [Item 6 \(page 74\)](#).



Transmission support to transmission bracket and transmission:

- Replace the bolts.
- Tighten all bolts hand-tight.
- Tighten the bolt to the tightening specification.

Bolts -arrows-	20 Nm +90°
----------------	------------



1.11 Clutch System, Bleeding

Special tools and workshop equipment required

- ◆ Brake Charger/Bleeder Unit - VAS5234- or
- ◆ Brake Charger/Bleeder Unit - VAG1869-



Note

It is not necessary to pre-fill the system.

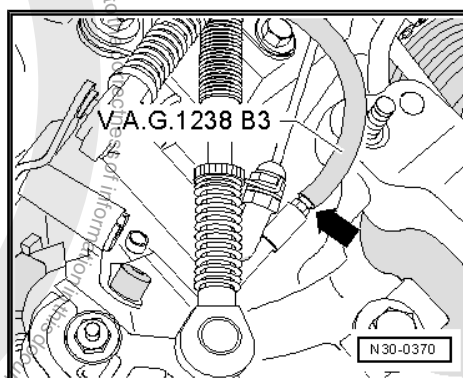
Brake fluid specification. Refer to ➤ Brake System; Rep. Gr. 47 ; Hydraulic System .

Perform the following procedure:

- Remove the air filter housing if the breather valve -arrow- is not accessible. Refer to ➤ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing or ➤ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .
- Connect the Brake Charger/Bleeder Unit - VAS5234- or - VAG1869- .

It is necessary to use the Bleeder Hose (670 mm) - VAG1238/B3- to bleed.

- Connect the bleed hose to the brake bleeder unit collector bottle.
- Attach the bleed hose to the breather valve -arrow-.
- Apply 2 bar pressure to the system.
- Open the breather valve.
- Let approximately 100 cm³ of brake fluid flow out.
- Close the breather valve.
- Operate the pedal rapidly from stop to stop, 10 to 15 times.
- Open the breather valve again.
- Let another 50 cm³ of brake fluid flow out.
- Close the breather valve.
- Press the clutch pedal a few times after bleeding the system.
- If removed, install the air filter housing. Refer to ➤ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing or ➤ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .





2 Clutch Release Mechanism, Servicing

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Grease for Clutch Disc Shaft Splines - G 000 100-

1 - Transmission

2 - Ball Stud

- ☐ 25 Nm
- ☐ For removing and installing, remove the transmission
- ☐ remove grease from extractor lever contact surfaces
- ☐ Grease using the Grease for Clutch Disc Shaft Splines - G 000 100-

3 - Input Shaft Seal

- ☐ For removing and installing, remove the transmission
- ☐ Replacing. Refer to -item 12-
⇒ [Item 12 \(page 204\)](#) .

4 - Guide Sleeve

- ☐ For removing and installing, remove the transmission
- ☐ With vulcanized O-ring
- ☐ Replace the guide sleeve and O-ring together if the O-ring is damaged.

5 - Spring

- ☐ For removing and installing, remove the transmission
- ☐ Attach to the clutch release lever

6 - Cylinder Bolt

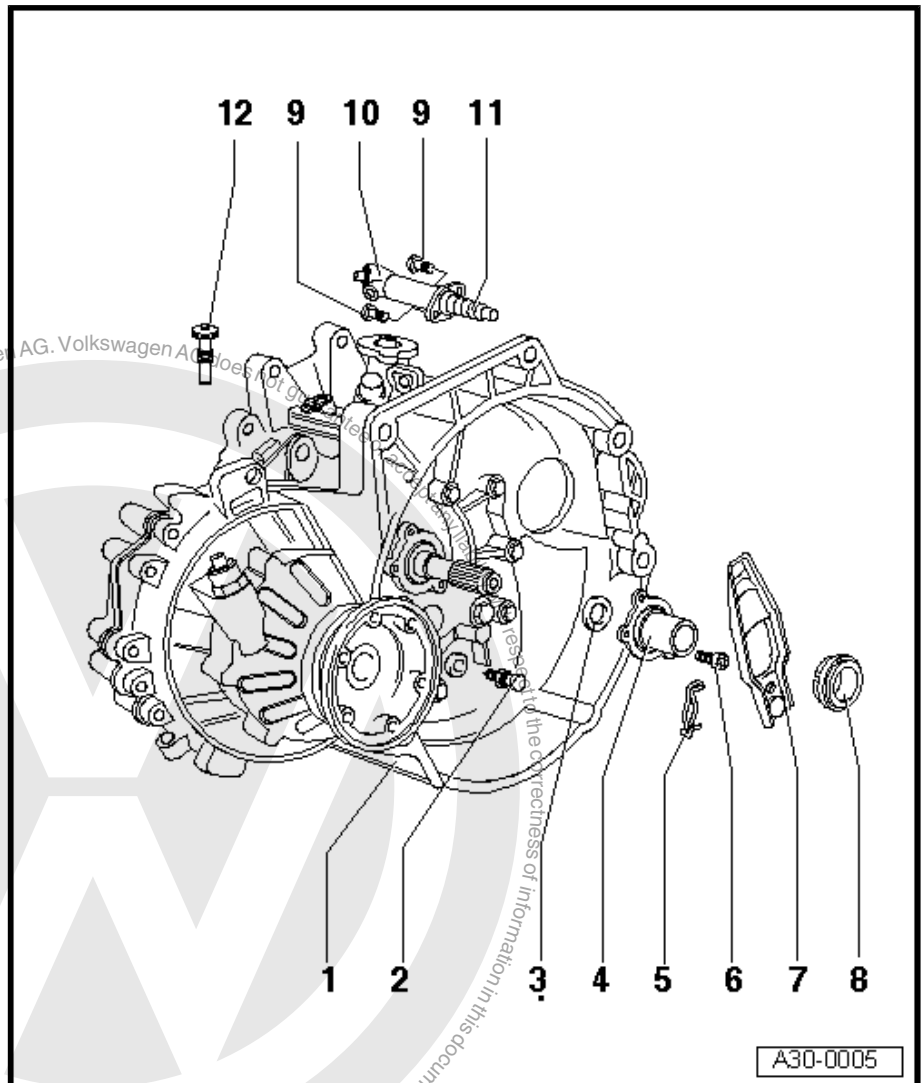
- ☐ 20 Nm

7 - Clutch Release Lever

- ☐ For removing and installing, remove the transmission
- ☐ Remove and install together with release bearing. Refer to
⇒ [Fig. "Removing and Installing the Release Bearing" , page 46](#)
- ☐ Remove grease already present

8 - Release Bearing

- ☐ Replace loud bearings
- ☐ For removing and installing, remove the transmission
- ☐ Do not wash the bearing, just wipe it off.





- ☐ Removing from the clutch release lever and inserting in the clutch release lever. Refer to ➔ [Fig. "Removing and Installing the Release Bearing", page 46](#)
- ☐ Lubricate release lever contact surface with MoS 2 grease.

9 - Collar Bolt

- ☐ 20 Nm

10 - Clutch Slave Cylinder

- ☐ Removing and Installing. Refer to ➔ ["1.10 Clutch Slave Cylinder, Removing and Installing", page 41](#) .

11 - Plunger

12 - Bolt

- ☐ Secures the clutch release lever when installing transmission
- ☐ Remove after installing the transmission

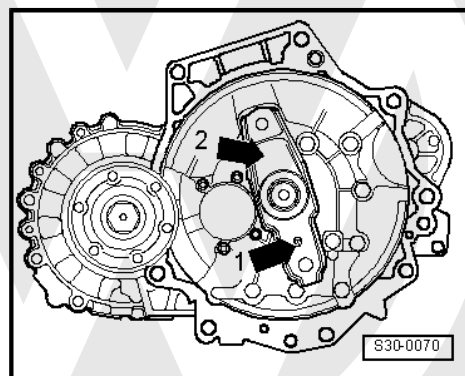


Note

Use an M8 x 35 bolt if the assembly bolt -item 12- ➔ [Item 12 \(page 46\)](#) is missing.

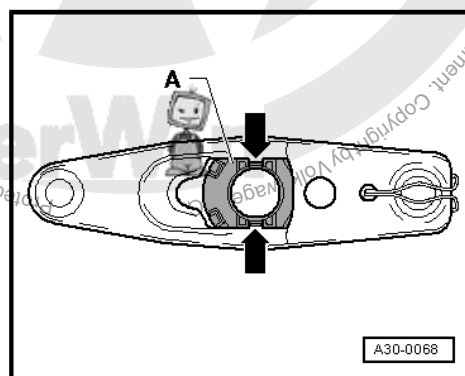
Remove and Install the Clutch Release Lever with the Release Bearing

- Unhook the spring -arrow 1-.
- Remove the clutch release lever -arrow 2- and release bearing.
- Install in reverse order of removal.



Removing and Installing the Release Bearing

- Press the tabs -arrows- together on backside of clutch release lever and remove release bearing -A- out of clutch release lever.
- To install, press the release bearing -A- into the clutch release lever until the tabs -arrows- engage.





3 Clutch with Dual Mass Flywheel, Servicing

- ⇒ [“3.1 Determining Clutch Manufacturer”, page 47](#)
- ⇒ [“3.2 Sachs Clutch, Removing and Installing”, page 48](#)
- ⇒ [“3.3 Clutch, Sachs, Servicing”, page 50](#)
- ⇒ [“3.4 LuK Clutch, Removing and Installing”, page 51](#)
- ⇒ [“3.5 Clutch, Manufactured by LuK, Servicing”, page 53](#)

3.1 Determining Clutch Manufacturer

Special tools and workshop equipment required

- ◆ Flywheel Retainer - 3067-
- ◆ Alignment Tool - Clutch Plate - 3190A-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Grease for Clutch Disc Shaft Splines - G 000 100-

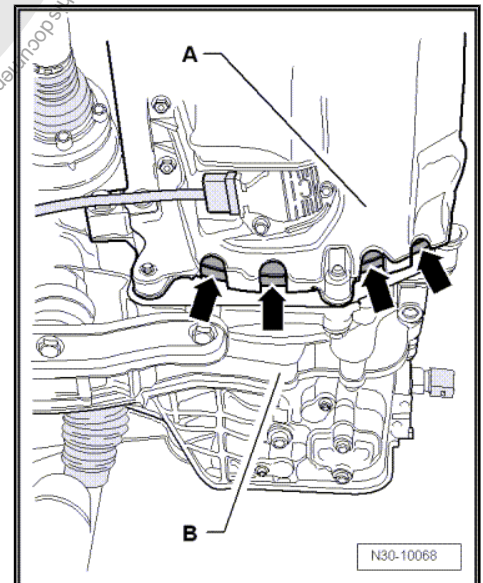
Either a “Sachs” or a “LuK” clutch may be installed.

It is possible to tell which clutch the vehicle has with the transmission installed:

- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .

There are some openings -arrows- between the engine -A- and the transmission -B- near the bottom of the oil pan.

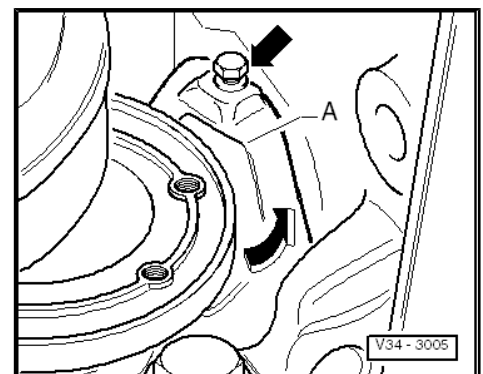
- Check the outer contour of the flywheel through these openings.



- The outer contour of the flywheel can also be inspected by removing the small cover plate -A-.

Round outer contour -arrows- = clutch made by Sachs = -A-

- Clutch, Removing and Installing, Sachs. Refer to ⇒ [“3.2 Sachs Clutch, Removing and Installing”, page 48](#) .





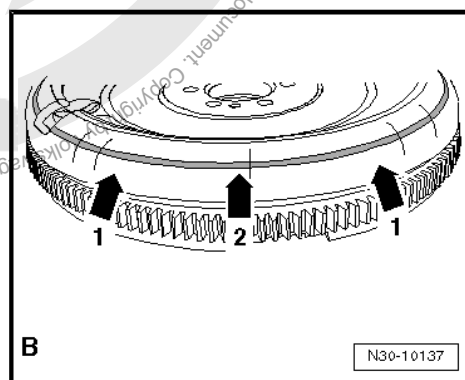
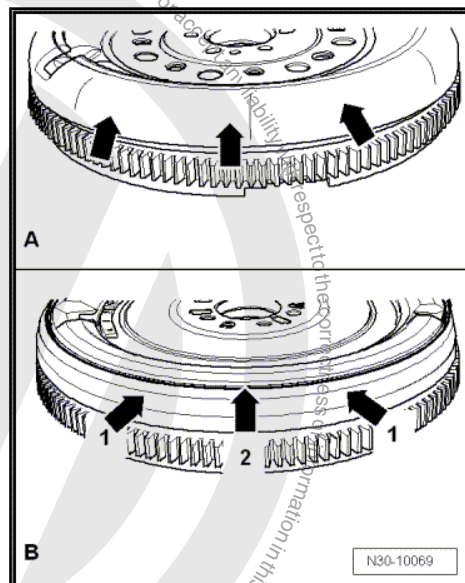
- Sachs Clutch, Servicing. Refer to
⇒ ["3.3 Clutch, Sachs, Servicing", page 50](#) .

Squared outer contour -arrows 1- and in addition, a pleat all the way around -arrow 2- = clutch made by LuK = -B-

or

Round outer contour -arrows 1- and a circulated depression -arrow 2- = Clutch manufacturer, LuK = -B-

- LuK Clutch, Removing and Installing. Refer to
⇒ ["3.4 LuK Clutch, Removing and Installing", page 51](#) .
- LuK Clutch, Servicing. Refer to
⇒ ["3.5 Clutch, Manufactured by LuK, Servicing", page 53](#) .



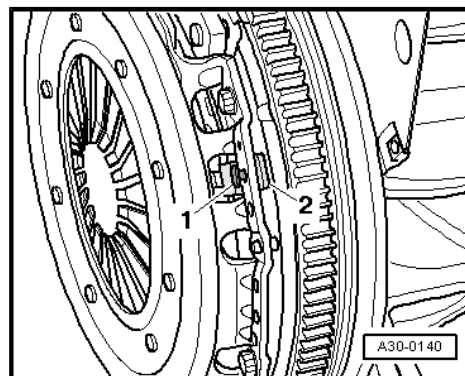
3.2 Sachs Clutch, Removing and Installing

⇒ ["3.2.1 Removing", page 48](#)

⇒ ["3.2.2 Installing", page 48](#)

3.2.1 Removing

- Remove the transmission.
- Insert the Flywheel Retainer - 3067- to loosen the bolts.
- Loosen the bolt diagonally in small steps.
- When loosening, the stop -2- and the bolt -1- must loosen up together.
- If the stop does not loosen: push the bolt toward the dual mass flywheel.
- Remove the pressure plate and the clutch plate.



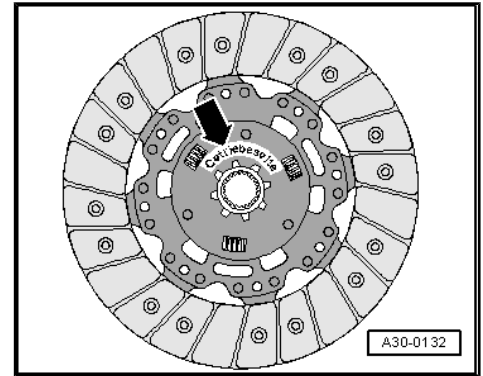
3.2.2 Installing

Install in reverse order of removal while. Note the following:



Note

- ◆ *Replace the pressure plate and the clutch plate together. Allocate thrust plate and clutch disc according to the engine code. Refer to the Parts Catalog.*
- ◆ *Make sure the alignment bushings for centering the engine/transmission are installed inside the cylinder block. Install them if necessary.*
- ◆ *If the alignment sleeves are missing, it will be difficult to shift, there will be clutch problems and the transmission may make noises (loose rattling).*

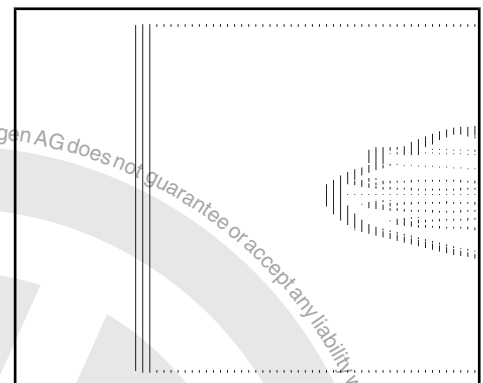


Clutch Plate Installed Position

- "Transmission side" label faces the transmission.

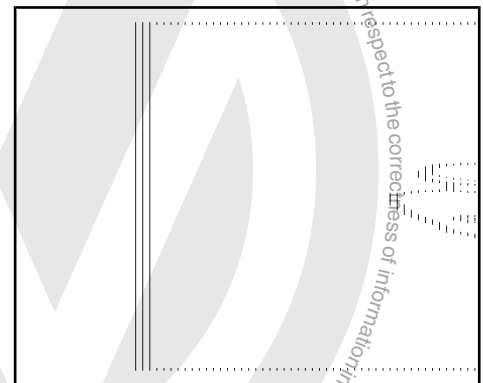
Check the ends of the Diaphragm Spring

- Wear up to half the thickness of the diaphragm spring -arrows- is permitted.



Checking the Spring Connections and Rivet Connections

- Check the spring connections between the pressure plate and the cover for cracks and make sure the rivet connections are tight.



Note

- ◆ *Replace clutch plates and pressure plates if the rivets are damaged or loose.*
- ◆ *Always replace the pressure plate and the clutch plate together.*
- ◆ *Allocate clutch disc and thrust plate using the engine code. Refer to the Parts Catalog.*
- ◆ *To reduce odor caused by a burnt clutch, thoroughly clean the clutch housing, the flywheel and the side of the engine facing toward the transmission.*
- ◆ *Clean the input shaft splines and (on used clutch plates) the hub splines. Remove any corrosion and then apply a very thin coat of Grease for Clutch Disc Shaft Splines - G 000 100- on the splines. Then move the clutch plate back and forth on the input shaft until the hub moves freely on the shaft. Remove any excess grease.*
- ◆ *The pressure plates are protected from corrosion and lubricated. Only the running surfaces may be cleaned. Otherwise the service life of the clutch will be shortened considerably.*
- ◆ *The pressure plate contact surface and the clutch plate lining must completely touch the flywheel. Install the bolts.*

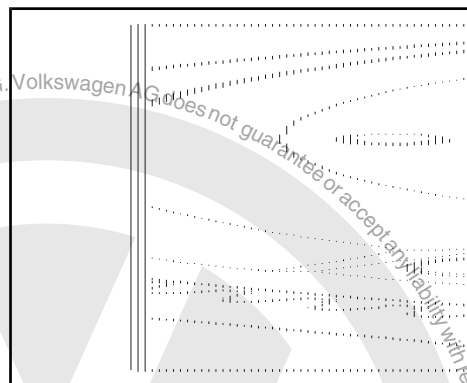




- Install the Flywheel Retainer - 3067- .
- Mount the pressure plate on the centering pins.
- Use the Alignment Tool - Clutch Plate - 3190A- to center the clutch plate.
- Install all bolts evenly, by hand, until the bolt heads touch the pressure plate.
- Tighten the bolts in small steps and in diagonal sequence to prevent damaging the centering holes of the pressure plate and the centering pins of the dual mass flywheel.

Tightening specification -item 4- => [Item 4 \(page 50\)](#) .

- Install the transmission.



3.3 Clutch, Sachs, Servicing

1 - Dual Mass Flywheel

- ☐ Removing and Installing. Refer to => Rep. Gr. 13 .
- ☐ Make sure it fits securely on the centering pins
- ☐ Keep the clutch lining contact surface free of grooves, oil and grease.

2 - Clutch Plate

- ☐ Only replace together with the pressure plate
- ☐ Allocation. Refer to the Parts Catalog.
- ☐ Removing and Installing. Refer to => ["3.2 Sachs Clutch, Removing and Installing", page 48](#) .
- ☐ Installation position. Refer to => [Fig. "Clutch Plate Installed Position", page 49](#) .

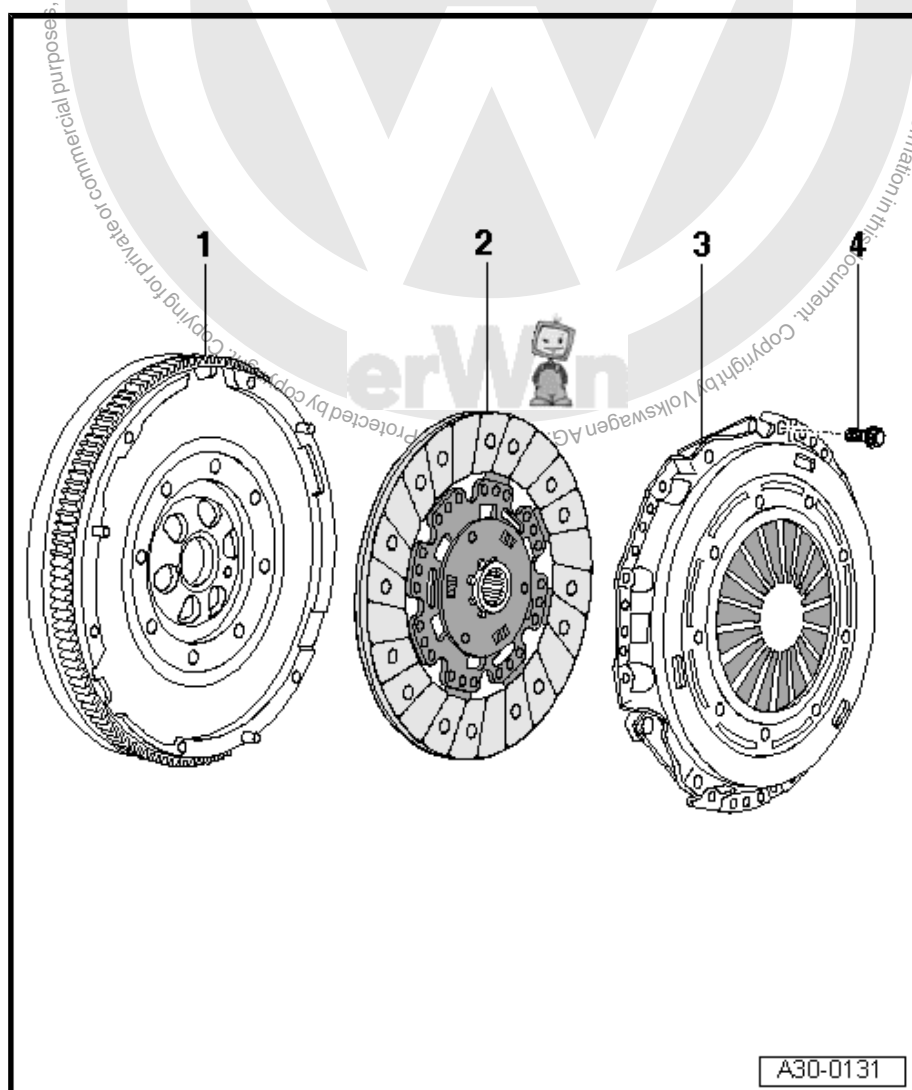
3 - Pressure Plate

- ☐ Only replace together with the clutch plate
- ☐ Allocation. Refer to the Parts Catalog.
- ☐ With adjustment mechanism
- ☐ Removing and Installing. Refer to => ["3.2 Sachs Clutch, Removing and Installing", page 48](#) .

- ☐ Checking the ends of the diaphragm spring. Refer to => [Fig. "Check the ends of the Diaphragm Spring", page 49](#)
- ☐ Checking the spring connections and rivet connections. Refer to => [Fig. "Checking the Spring Connections and Rivet Connections", page 49](#)

4 - M6 Bolt; M7 Bolt

- ☐ M7 bolt: 20 Nm





- ❑ M6 bolt: 13 Nm
- ❑ Loosen and tighten in small steps and in diagonal sequence

3.4 LuK Clutch, Removing and Installing

⇒ ["3.4.1 Removing", page 51](#)

⇒ ["3.4.2 Installing", page 51](#)

3.4.1 Removing

- Remove the transmission.
- Insert the Flywheel Retainer - 3067- to loosen the bolts.
- Loosen the bolt diagonally in small steps.
- Remove the pressure plate and the clutch plate.

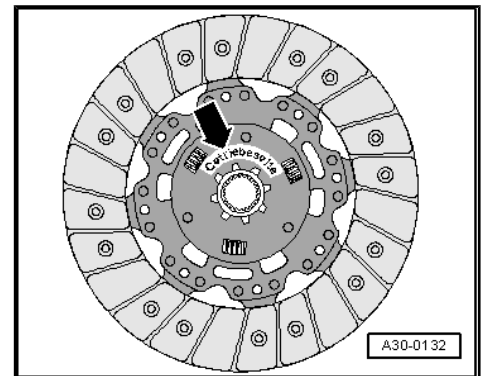
3.4.2 Installing

Install in reverse order of removal while. Note the following:



Note

- ◆ *Replace the pressure plate and the clutch plate together. Always locate thrust plate and clutch disc according to the engine code. Refer to the Parts Catalog.*
- ◆ *Make sure the alignment bushings for centering the engine/transmission are installed inside the cylinder block. Install them if necessary.*
- ◆ *If the alignment sleeves are missing, it will be difficult to shift, there will be clutch problems and the transmission may make noises (loose rattling).*

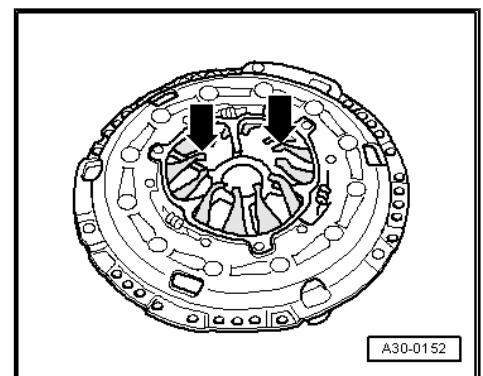


Clutch Plate Installed Position

- "Transmission side" label faces the transmission.

Check the ends of the Diaphragm Spring

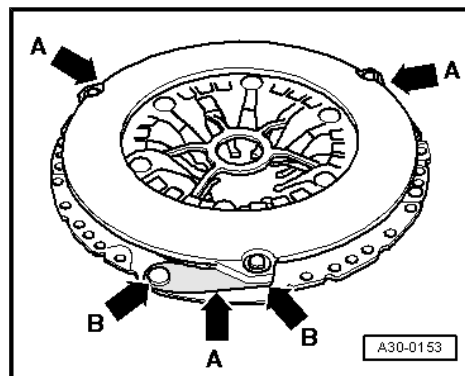
- Wear up to half the thickness of the diaphragm spring -arrows- is permitted.





Checking the Spring Connections and Rivet Connections

- Check the spring connections -arrows A- for damage and make sure the rivet connections -arrows B- are tight.



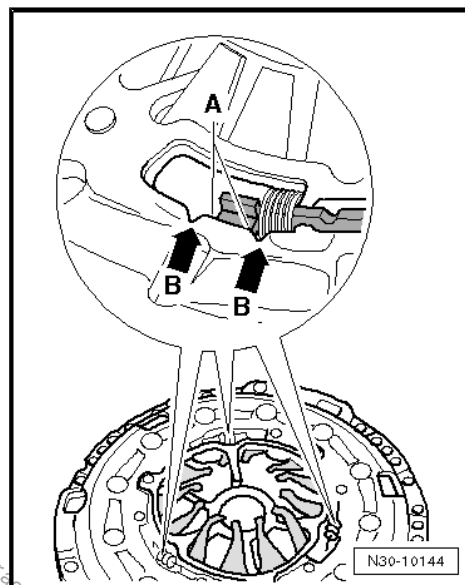
Only Check Position of Adjustment Mechanism with New Pressure Plates

- Both edges -A- of the adjusting ring must be located between both notches -arrows B-.
- If the adjusting ring takes on a different position with new pressure plates, pressure plate and clutch plate must not be installed.
- With used clutches, the adjusting ring may take on a position outside of the notches.



Note

- ◆ Replace clutch plates and pressure plates if the rivets are damaged or loose.
- ◆ Replace the pressure plate and the clutch plate together.
- ◆ Allocate clutch disc and thrust plate using the engine code. Refer to the Parts Catalog.
- ◆ To reduce odor caused by a burnt clutch, thoroughly clean the clutch housing, the flywheel and the side of the engine facing toward the transmission.
- ◆ Clean the input shaft splines and (on used clutch plates) the hub splines. Remove any corrosion and then apply a very thin coat of Grease for Clutch Disc Shaft Splines - G 000 100- on the splines. Then move the clutch plate back and forth on the input shaft until the hub moves freely on the shaft. Remove any excess grease.
- ◆ The pressure plates are protected from corrosion and lubricated. Only the running surfaces may be cleaned. Otherwise the service life of the clutch will be shortened considerably.
- ◆ The pressure plate contact surface and the clutch plate lining must completely touch the flywheel. Install the bolts.

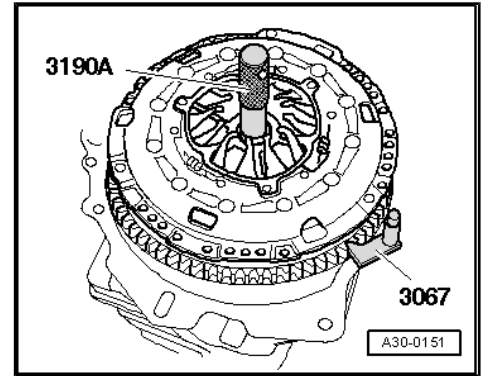




- Install the Flywheel Retainer - 3067- .
- Mount the pressure plate on the centering pins.
- Use the Alignment Tool - Clutch Plate - 3190A- to center the clutch plate.
- Install all bolts evenly, by hand, until the bolt heads touch the pressure plate.
- Tighten the bolts in small steps and in diagonal sequence to prevent damaging the centering holes of the pressure plate and the centering pins of the dual mass flywheel.

Tightening specification -item 4 - ➔ [Item 4 \(page 54\)](#) .

- Install the transmission.



3.5 Clutch, Manufactured by LuK, Servicing

1 - Dual Mass Flywheel

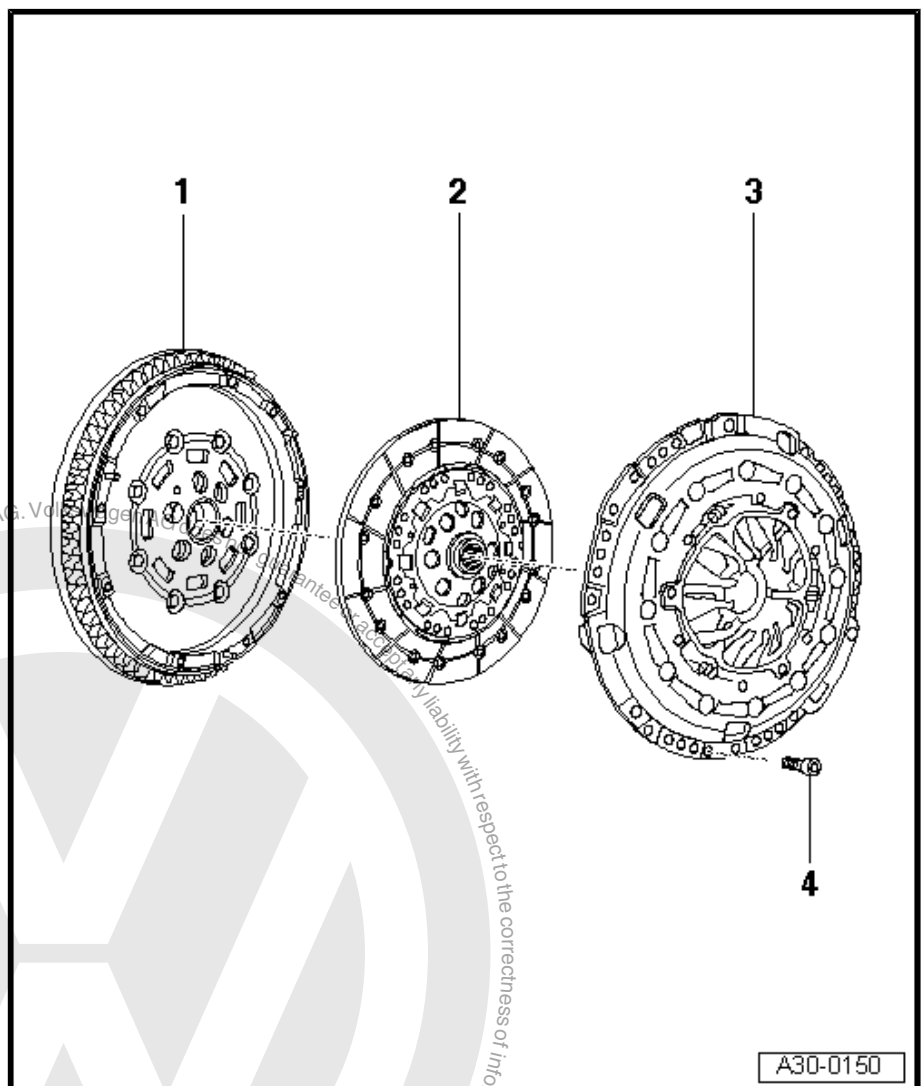
- ☐ Removing and Installing. Refer to ➔ Rep. Gr. 13 .
- ☐ Make sure it fits securely on the centering pins
- ☐ Keep the clutch lining contact surface free of grooves, oil and grease.

2 - Clutch Plate

- ☐ Allocation. Refer to the Parts Catalog.
- ☐ Removing and Installing. Refer to ➔ ["3.4 LuK Clutch, Removing and Installing", page 51](#) .
- ☐ Only replace together with the SAC pressure plate
- ☐ Installation position. Refer to ➔ [Fig. "Clutch Plate Installed Position", page 51](#)

3 - SAC Pressure Plate

- ☐ SAC = "self-adjusting clutch"
- ☐ Only replace together with the clutch plate
- ☐ Allocation. Refer to the Parts Catalog.
- ☐ Removing and Installing. Refer to ➔ ["3.4 LuK Clutch, Removing and Installing", page 51](#) .
- ☐ Checking the ends of the diaphragm spring. Refer to ➔ [Fig. "Check the ends of the Diaphragm Spring", page 51](#)
- ☐ Checking the spring connection and rivet connections. Refer to ➔ [Fig. "Check the ends of the Diaphragm Spring", page 51](#)





- ☐ Only check position of the adjustment mechanism on new pressure plates. Refer to
⇒ Fig. [““Only Check Position of Adjustment Mechanism with New Pressure Plates””](#), page 52

4 - M6 Bolt; M7 Bolt

- ☐ M7 bolt: 20 Nm
- ☐ M6 bolt: 13 Nm
- ☐ Loosen and tighten in small steps and in diagonal sequence





4 Clutch with One-Piece Flywheel, Servicing

Special tools and workshop equipment required

- ◆ Flywheel Retainer - 3067-
- ◆ Alignment Tool - Clutch Plate - 3190A-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Grease for Clutch Disc Shaft Splines - G 000 100-

(Transmission removed)

Note

- ◆ Replace clutch plates and pressure plates if the rivet connections are damaged or loose.
- ◆ Allocate the clutch plate and pressure plate according to the Parts Catalog and the engine code.
- ◆ Make sure the alignment bushings for centering the engine/transmission are installed inside the cylinder block. Install them if necessary.
- ◆ If the alignment sleeves are missing, it will be difficult to shift, there will be clutch problems and the transmission may make noises (loose rattling).

1 - Flywheel

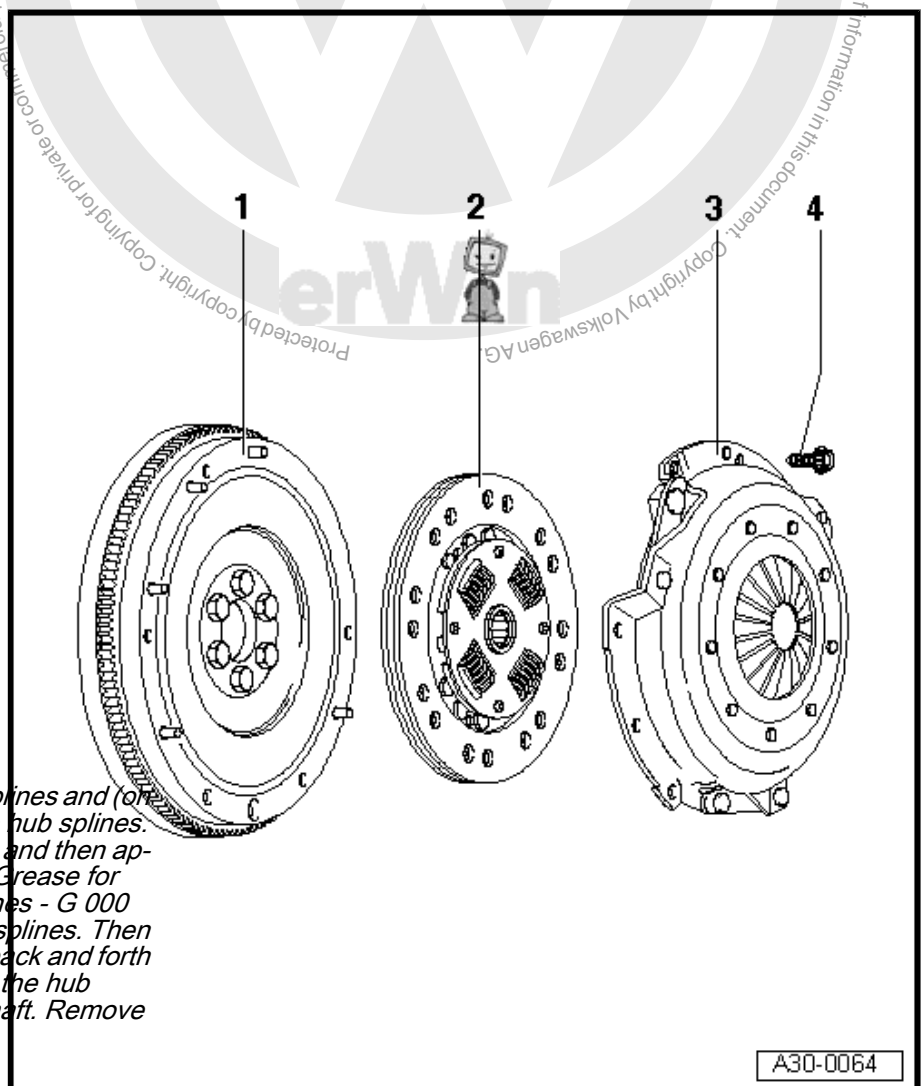
- ☐ Removing and Installing. Refer to ⇒ Rep. Gr. 13 .
- ☐ Make sure it fits securely on the centering pins
- ☐ Keep the clutch lining contact surface free of grooves, oil and grease

2 - Clutch Plate

- ☐ Allocation. Refer to the Parts Catalog.
- ☐ The spring cage faces the pressure plate
- ☐ Centering. Refer to ⇒ [Fig. "Centering the Clutch Plate and Removing and Installing Pressure Plate."](#), [page 56](#)
- ☐ Lightly grease the splines

Note

Clean the input shaft splines and (on used clutch plates) the hub splines. Remove any corrosion and then apply a very thin coat of Grease for Clutch Disc Shaft Splines - G 000 100- on the driveshaft splines. Then move the clutch plate back and forth on the input shaft until the hub moves freely on the shaft. Remove any excess grease.



A30-0064



3 - Pressure Plate

- ☐ Removing and Installing. Refer to
⇒ Fig. ["Centering the Clutch Plate and Removing and Installing Pressure Plate."](#), page 56 .
- ☐ Checking the ends of the diaphragm spring. Refer to
⇒ Fig. ["Check the ends of the Diaphragm Spring"](#), page 56
- ☐ Checking the spring connections and rivet connections. Refer to
⇒ Fig. ["Checking the Spring Connections and Rivet Connections"](#), page 57



Note

The pressure plates are protected from corrosion and lubricated. Only the running surfaces may be cleaned, otherwise the service life of the clutch will be shortened considerably.

4 - M6 Bolt; M7 Bolt

- ☐ M6 bolt: 13 Nm
- ☐ M7 bolt: 20 Nm
- ☐ Allocate using the Parts Catalog.
- ☐ Loosen/tighten diagonally and in steps

Centering the Clutch Plate and Removing and Installing Pressure Plate.

- Loosen or tighten the bolts diagonally and in steps.
- Install the Flywheel Retainer - 3067- when removing.

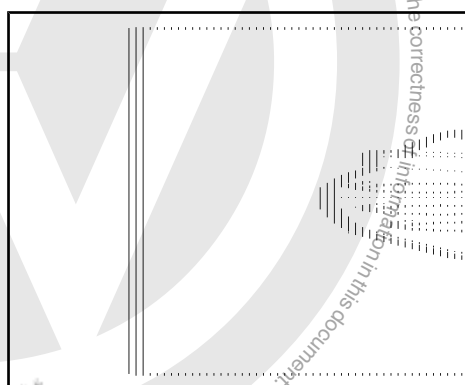
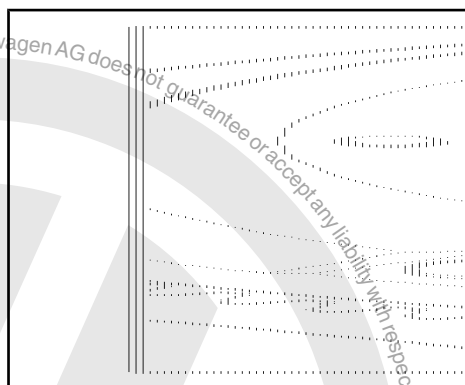


Note

The pressure plate contact surface and the clutch plate lining must completely touch the flywheel. Tighten securing bolts in diagonal sequence equally so that centering holes of pressure plate and centering pins of flywheel do not become damaged.

Check the ends of the Diaphragm Spring

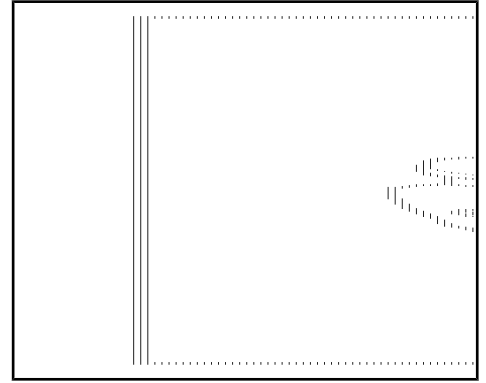
- Wear up to half the thickness of the diaphragm spring is permitted.





Checking the Spring Connections and Rivet Connections

- Check the spring connections between the pressure plate and the cover for cracks and make sure the rivet connections are tight.
- Replace the pressure plate if the spring connections are damaged or if the rivet connections -arrows- are loose.

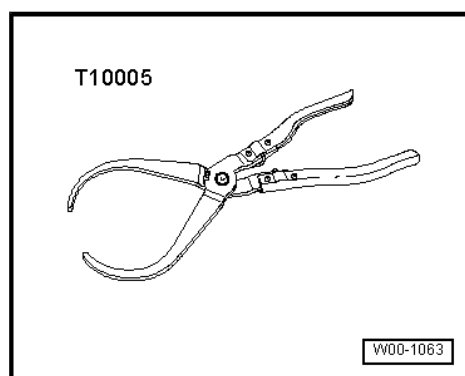




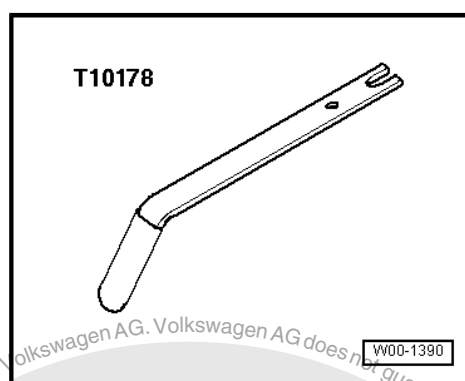
5 Special Tools

Special tools and workshop equipment required

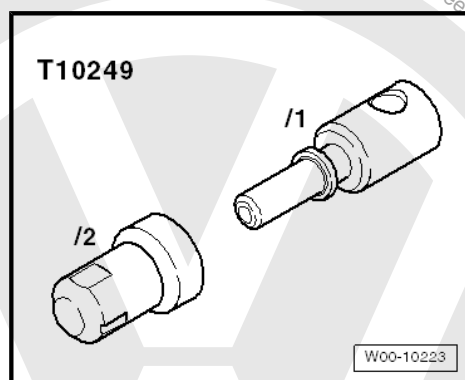
- ◆ Pliers - T10005-



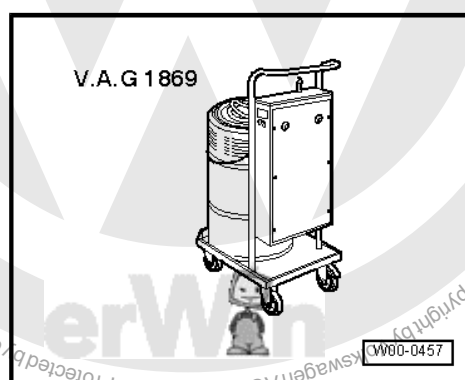
- ◆ Assembly Tool - T10178-



- ◆ Sealing Tool - T10249-

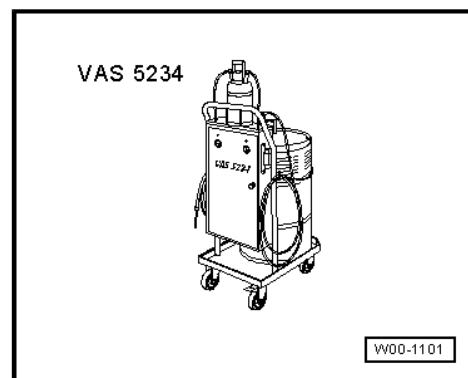


- ◆ Brake Charger/Bleeder Unit - VAG1869-

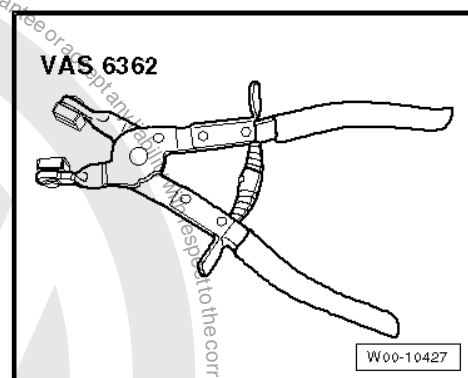




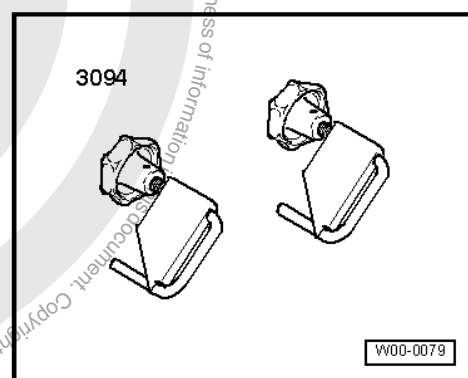
- ◆ Brake Charger/Bleeder Unit - VAS5234- or



- ◆ Hose Clamp Pliers - VAS6362-



- ◆ Hose Clamps up to 25 mm Dia. - 3094-





34 – Controls, Housing

1 Shift Mechanism, Servicing

- ⇒ [“1.1 Shift Mechanism Installation Position”, page 60](#)
- ⇒ [“1.2 Selector Mechanism, Overview”, page 62](#)
- ⇒ [“1.3 Gearshift Knob and Cover, Removing and Installing”, page 63](#)
- ⇒ [“1.4 Boot with Shifter Knob and Noise Insulation, Removing and Installing”, page 64](#)
- ⇒ [“1.5 Gearshift Lever and Shift Housing, through 10/2006, Servicing”, page 65](#)
- ⇒ [“1.6 Gearshift Lever and Shift Housing, Servicing, from 11/2006”, page 67](#)
- ⇒ [“1.7 Overview - Operating Cables, Removing and Installing”, page 73](#)
- ⇒ [“1.8 Plastic Relay Lever”, page 77](#)
- ⇒ [“1.9 Selector Mechanism, Removing and Installing”, page 80](#)
- ⇒ [“1.10 Gearshift Cable and Selector Cable, Removing and Installing”, page 83](#)
- ⇒ [“1.11 Selector Mechanism, Adjusting”, page 85](#)

1.1 Shift Mechanism Installation Position

- Arrow A- Gearshift Lever Movement
- Arrow B- Selector Lever Movement





A - Gearshift Lever Cable

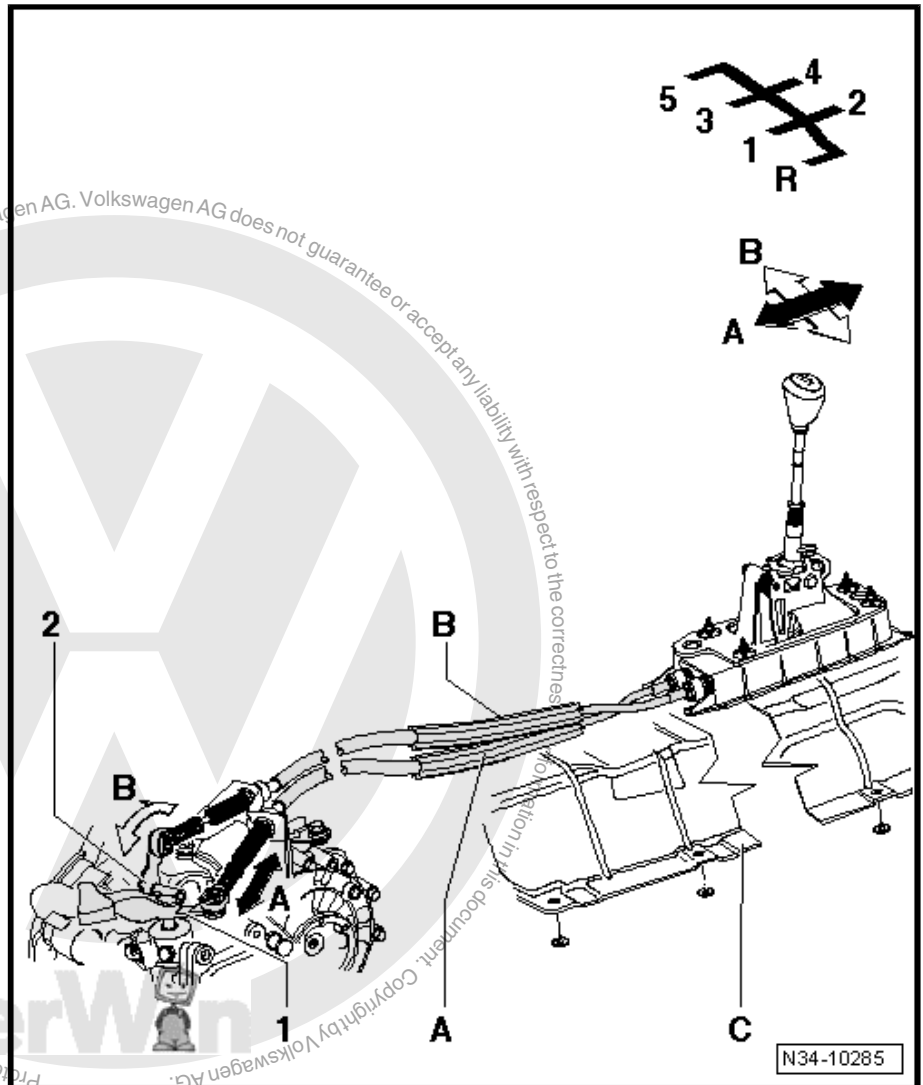
B - Selector Cable

C - Heat Shield

- ☐ Remove the shift mechanism before removal.

1 - Selector Lever

2 - Relay Lever





1.2 Selector Mechanism, Overview



Note

- ♦ Note radio code on vehicles with coded radio.
- ♦ Disconnect the ground cable from the battery when working on the gearshift mechanism inside the engine compartment. Refer to ➔ [Electrical Equipment; Rep. Gr. 27; Battery; Battery, Disconnecting and Connecting](#).
- ♦ Connect battery and follow the procedures to be performed after connecting a battery. Refer to ➔ [Electrical Equipment; Rep. Gr. 27; Battery; Battery, Disconnecting and Connecting](#).
- ♦ When working on the selector mechanism in the engine compartment, remove the complete air filter housing, if it is located above the selector mechanism ➔ [Rep. Gr. 23; Diesel Direct Injection System; Air Filter Housing, Removing and Installing](#) or ➔ [Rep. Gr. 24; Air Filter; Air Filter Housing, Removing and Installing](#).
- ♦ The shift mechanism must be removed in order to replace the operating cables. Refer to ➔ ["1.9 Selector Mechanism, Removing and Installing", page 80](#).
- ♦ Do not bend the operating cables.

I - Gearshift Knob and Cover, Removing and Installing. Refer to

➔ ["1.3 Gearshift Knob and Cover, Removing and Installing", page 63](#).

II - Gearshift Lever and Shift Housing, through 10/2006, Servicing. Refer to

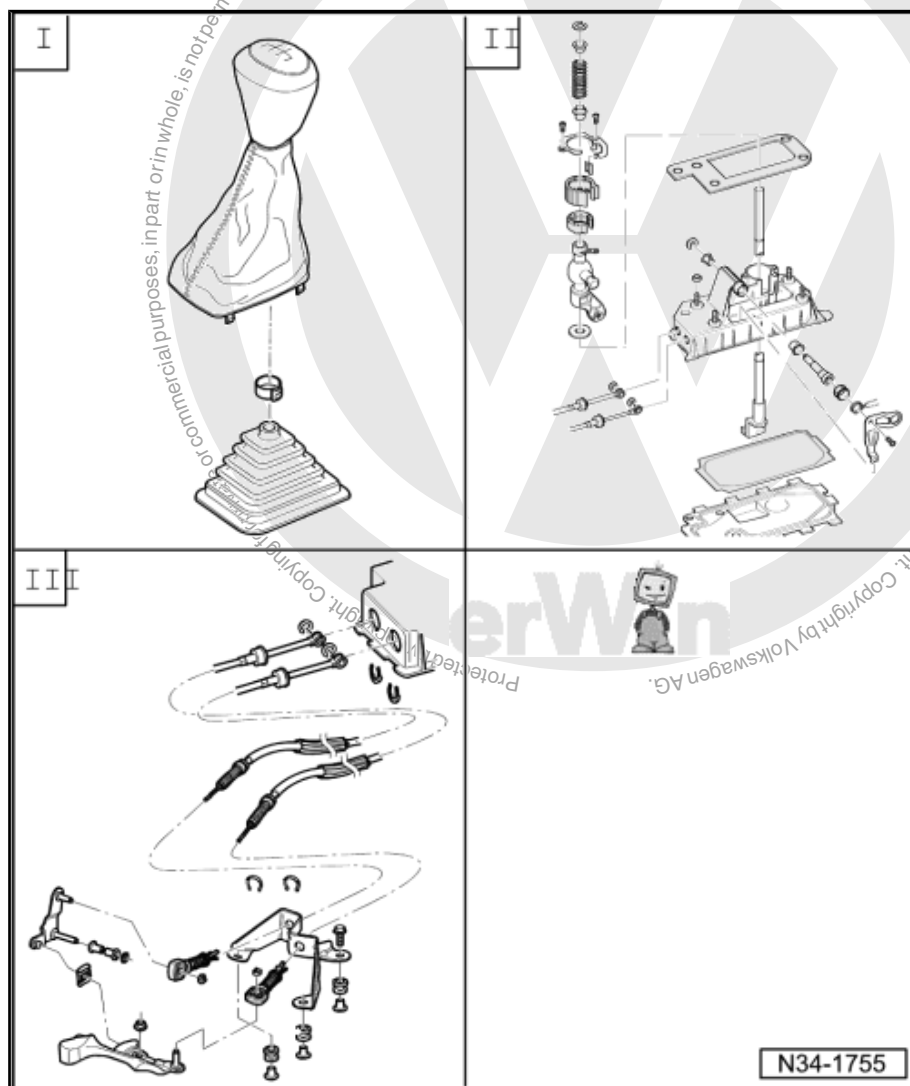
➔ ["1.5 Gearshift Lever and Shift Housing, through 10/2006, Servicing", page 65](#)

II - Gearshift lever and Shift Housing, from 11/2006, Servicing. Refer to

➔ ["1.6 Gearshift Lever and Shift Housing, Servicing, from 11/2006", page 67](#)

III - Operating Cables, Removing and Installing. Refer to

➔ ["1.7 Overview - Operating Cables, Removing and Installing", page 73](#).



Gearshift Mechanism, Removing and Installing. Refer to
➔ ["1.9 Selector Mechanism, Removing and Installing", page 80](#).



Adjust the gearshift mechanism. Refer to
⇒ ["1.11 Selector Mechanism, Adjusting", page 85](#) .

Special tools and workshop equipment required

- ◆ Hose Clip Pliers - VAG1275A-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-

1.3 Gearshift Knob and Cover, Removing and Installing

1 - Badge

- ☐ Can be carefully pried off a plastic or leather shift knob

2 - Gearshift Knob

- ☐ Always replace together
- ☐ With boot
- ☐ The shift knob and boot cannot be separated from each other.
- ☐ Removing and Installing. Refer to
⇒ ["1.4 Boot with Shifter Knob and Noise Insulation, Removing and Installing", page 64](#) .

3 - Clamp

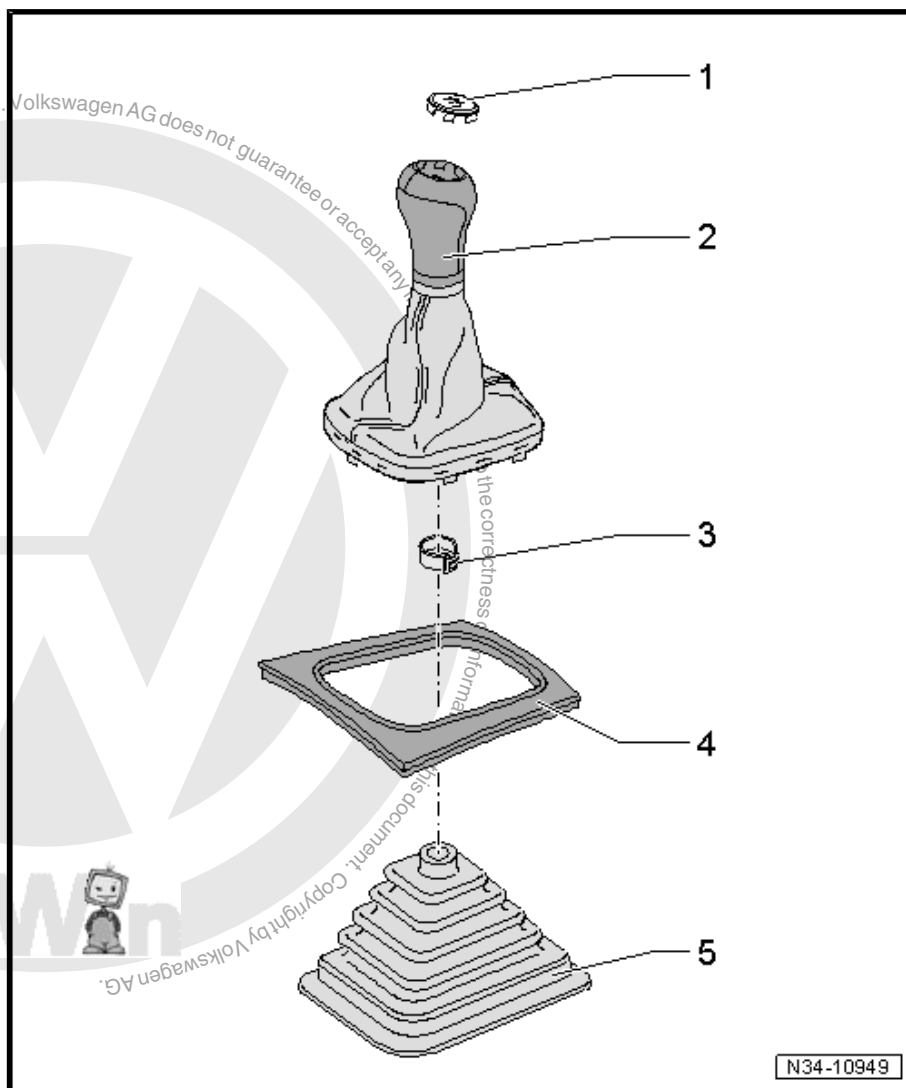
- ☐ Always replace.
- ☐ For securing the shift knob to the shift lever
- ☐ Secure on the gearshift knob -item 2-
⇒ [Item 2 \(page 63\)](#) using Hose Clamp Pliers - V.A.G 1275- .

4 - Center Control Cover

- ☐ Combined in one piece with the upper center console section on some versions

5 - Noise Insulation

- ☐ Not on all vehicles
- ☐ Arrow on noise insulation points in direction of travel
- ☐ Retaining tab spacing varies
- ☐ Therefore can only be arranged in one position





1.4 Boot with Shifter Knob and Noise Insulation, Removing and Installing

Removing

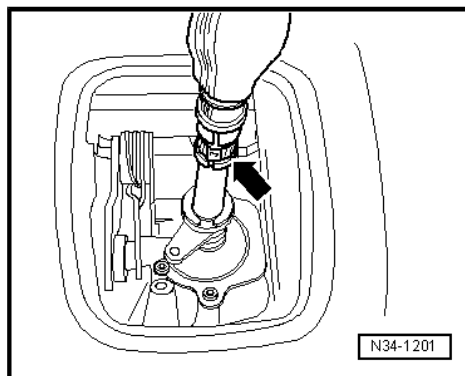
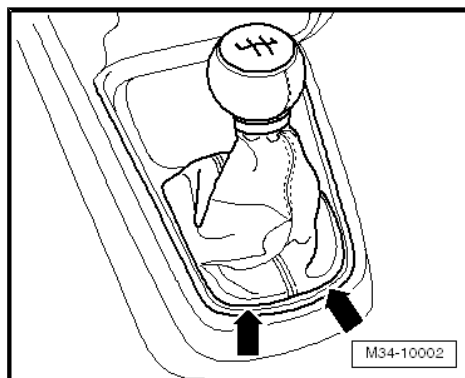
- Remove the boot with the center console cover from the center console or pry it out carefully -arrows-.



Note

On some equipment versions, the boot must be pryed out at the front area.

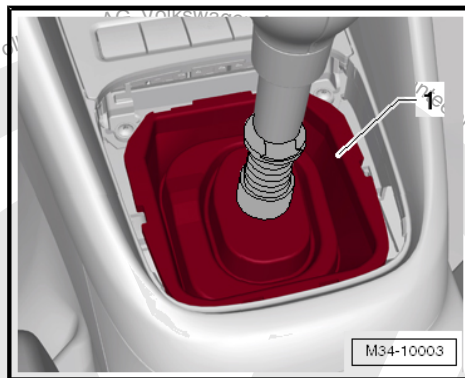
- Fold the boot with the center console cover up over the shifter knob.
 - Open the clamp -arrow- and remove the shift knob and boot.
- In some equipment versions, the center console cover remains in the center console.
- Pull the center console cover out or pry it out carefully.



- Remove the noise insulation -1-.

Installing

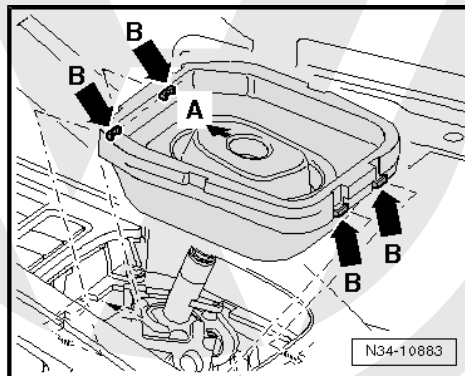
- Install the noise insulation.



Installation Location, Noise Insulation

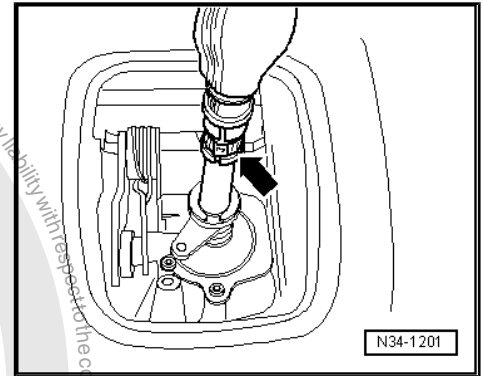
- -Arrow A- points in direction of travel.
- The tabs -arrows B- must latch into the center console.
- Press the center console cover into the center console.
- Then turn inner side of boot toward outside.

Install the shift knob all the way on.





- Install the shifter knob with cover and boot and press the new clamp -arrow- together.
- Press the boot and the cover into the center console or press the boot into the cover.



1.5 Gearshift Lever and Shift Housing, through 10/2006, Servicing



Note

Lubricate the bearing areas and the sliding surfaces. Refer to the Parts Catalog for the grease allocation.

1 - Lock Washer

- ☐ Removing and Installing. Refer to [⇒ Fig. "Removing and Installing the Lock Washer", page 67](#).

2 - Bushing

3 - Pressure Spring

4 - Bushing

5 - TORX® Bolt

- ☐ 5 Nm

6 - Cover

7 - Insulation

8 - Insulation

9 - Bearing Shell

10 - Gearshift Lever Guide

11 - Washer

12 - Seal

- ☐ Between the gearshift housing and the underbody
- ☐ Self-adhesive
- ☐ Affix to the gearshift housing

13 - Gearshift Lever

14 - Gearshift Housing

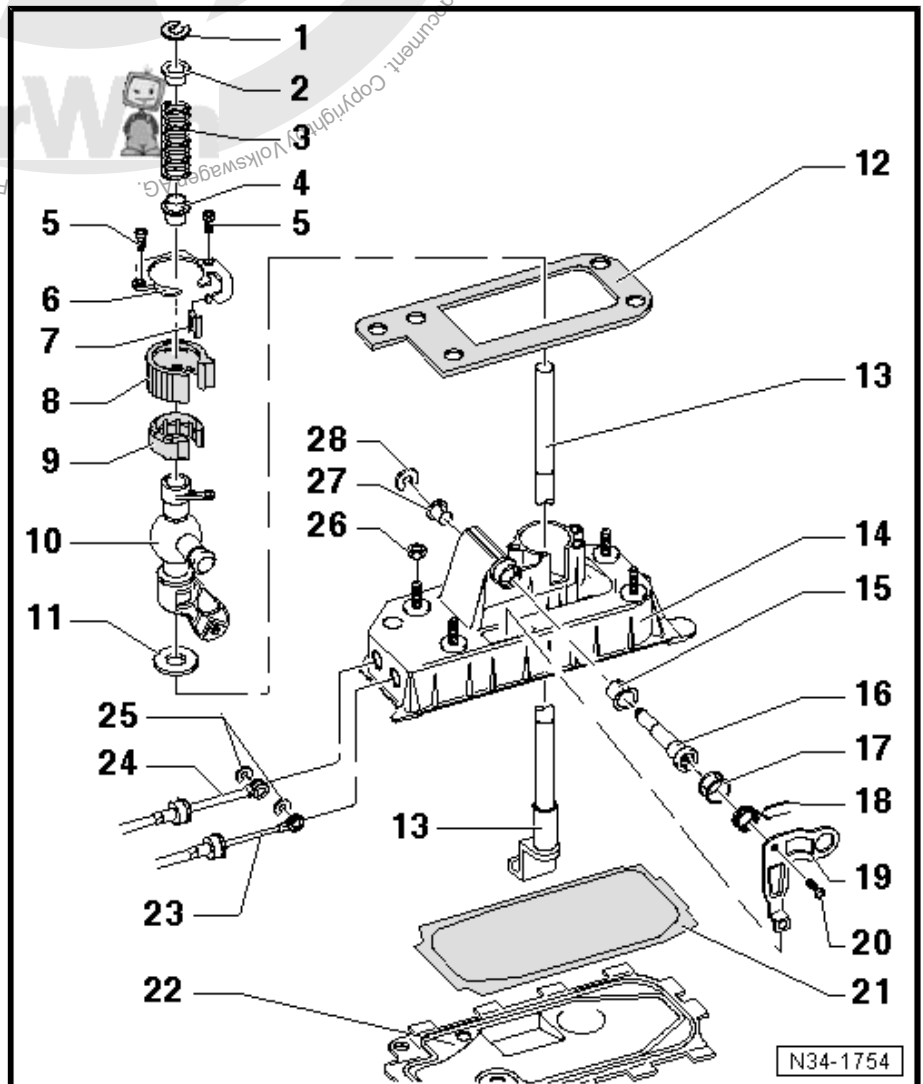
15 - Bearing Bushing

16 - Mounting Pin

17 - Guide Bushing

18 - Pressure Spring

- ☐ Installing. Refer to [⇒ Fig. "Installing the Pressure Spring", page 67](#).





19 - Selector Bracket

20 - TORX® Bolt

- ❑ 5 Nm

21 - Seal

- ❑ Always replace.

22 - Base Plate

- ❑ Always replace.
- ❑ Bend the tabs in order to remove

23 - Selector Cable

- ❑ To the selector bracket
- ❑ Removing and installing. Refer to
⇒ Fig. “Detaching from the Selector Cable and the Shift Cable and Attaching”, page 66 .

24 - Gearshift Cable

- ❑ Removing from the shift lever guide and attaching to the shift lever guide. Refer to
⇒ Fig. “Detaching from the Selector Cable and the Shift Cable and Attaching”, page 66

25 - Lock Washer

- ❑ Always replace.

26 - Nut

- ❑ M8: 25 Nm
- ❑ M6: 8 Nm
- ❑ Quantity: 4

27 - Bearing Bushing

- ❑ Fits in one position only

28 - Lock Washer

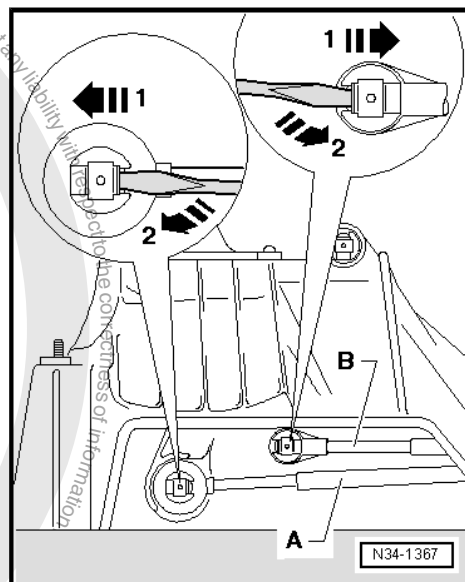
- ❑ Always replace.

Detaching from the Selector Cable and the Shift Cable and Attaching

- Remove the lock washer from the shift cable -A- and the selector cable -B-.

Lift the tab with a screwdriver -arrow 1- and remove the lock washer -arrow 2-.

- Remove the shift cable -A- from the gearshift lever mount.
- Remove the selector cable -B- from the selector bracket mount.





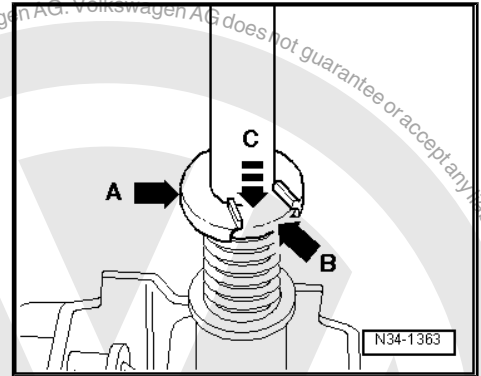
Removing and Installing the Lock Washer

- Push the spacer bushing -arrow B- all the way in direction of -arrow C- and remove or install the lock washer -arrow A-.



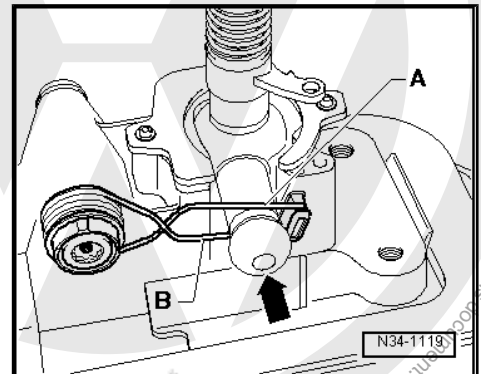
Note

- ◆ Do not tilt the bushing when pushing it down.
- ◆ The slot in the lever for the circlip must be visible.
- ◆ Carefully release the tension on the spring.



Installing the Pressure Spring

- Install the compression spring so that the brace -A- contacts upper part of pin -arrow-.
- Pull the brace -B- downward so that it reached the bottom of the pin -arrow-.



1.6 Gearshift Lever and Shift Housing, Servicing, from 11/2006

⇒ **"1.6.1 Selector Mechanism, Disassembling and Assembling",
page 69**



Note

- ◆ Lubricate the bearing areas and the sliding surfaces. Refer to the Parts Catalog for the grease allocation.
- ◆ Gearshift Mechanism, Disassembling and Assembling. Refer to
⇒ **"1.6.1 Selector Mechanism, Disassembling and Assembling", page 69** .



1 - Base Plate

- ☐ Always replace.
- ☐ Bend the tabs in order to remove

2 - Seal

- ☐ Always replace.

3 - Gearshift Lever

- ☐ Can be removed and installed with the shift lever guide installed - item 15.
⇒ [Item 15 \(page 68\)](#).

4 - Washer

- ☐ Slide out of shift lever as far as stop -arrow-.

5 - Lock Washer

- ☐ Always replace.
- ☐ Be careful not to damage the cables when removing them

6 - Selector Cable

- ☐ Pry off of selector bracket
- ☐ Press onto selector bracket inside the shift mechanism
- ☐ Installation position. Refer to ⇒ ["1.1 Shift Mechanism Installation Position", page 60](#).

7 - Bushing

8 - Gearshift Cable

- ☐ Pry off of shift lever guide
- ☐ Press onto shift lever guide inside the shift mechanism
- ☐ Installation position. Refer to ⇒ ["1.1 Shift Mechanism Installation Position", page 60](#).

9 - Insulation

10 - Bearing Shell

- ☐ Always replace.
- ☐ Will get damaged when being removed

11 - Bushing

12 - Lock Washer

- ☐ Removing and Installing. Refer to ⇒ [Fig. "Removing and Installing the Lock Washer", page 67](#).

13 - Pressure Spring

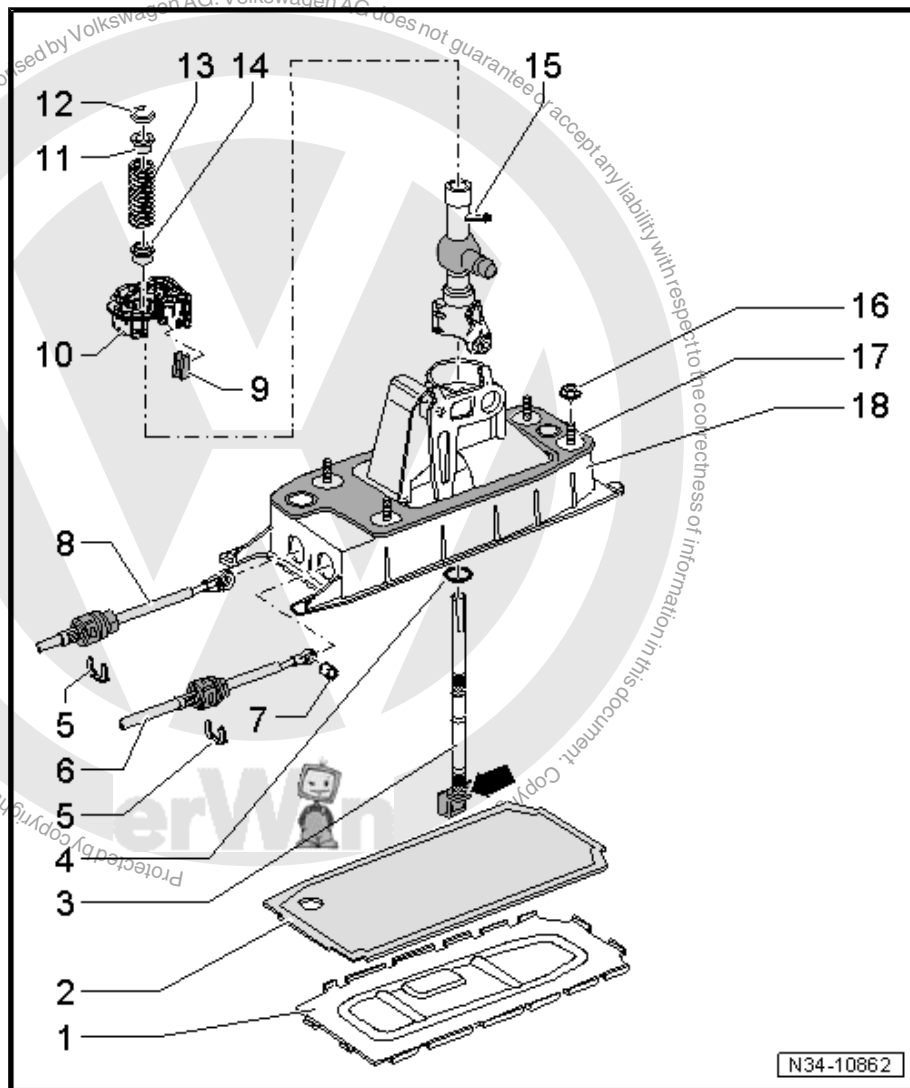
- ☐ Removing and Installing. Refer to ⇒ [Fig. "Removing and Installing the Lock Washer", page 67](#).

14 - Bushing

15 - Gearshift Lever Guide

16 - Nut

- ☐ M8: 25 Nm
- ☐ M6: 8 Nm
- ☐ Quantity: 4





17 - Seal

- ☐ Between the gearshift housing and the underbody
- ☐ Affix to the gearshift housing
- ☐ Self-adhesive

18 - Gearshift Housing

- ☐ With spring and selector bracket
- ☐ Spring and selector bracket cannot be removed

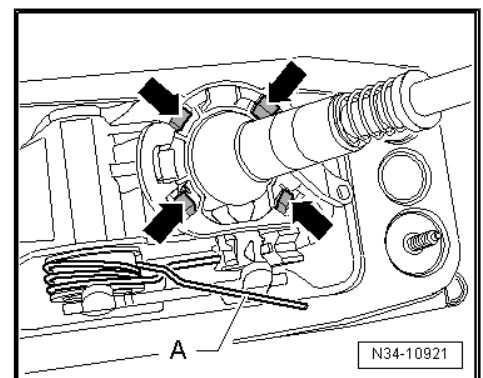
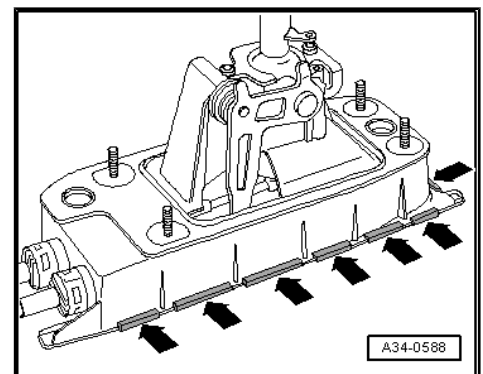
1.6.1 Selector Mechanism, Disassembling and Assembling

Special tools and workshop equipment required

- ◆ Window Release Tool - T10236-
- ◆ Press Piece - Multiple Use - VW412-
- ◆ Over-Center Spring Assembly Tool- T10178- or flat iron, 200 x 25 x 5
- ◆ Engine Support Bridge - Engine Support 25 - 10-222A/25- or flat iron, 350 X 30 X 5
- ◆ Puller - Counterstay , for example -Kukko 2214-
- ◆ Wedge - T10357-
- ◆ Press Piece - Block - T10083-

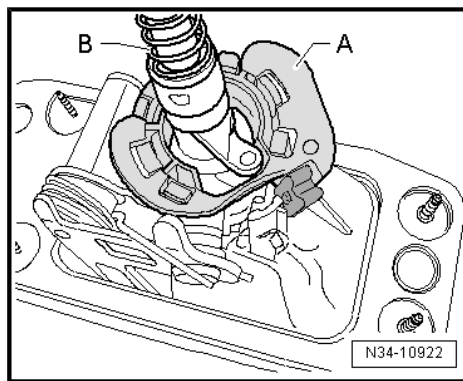
Perform the Following Procedure:

- Remove the selector mechanism. Refer to
⇒ ["1.9 Selector Mechanism, Removing and Installing", page 80](#) .
- Bend up the tabs -arrows- on the shift mechanism base plate using a screwdriver and remove the base plate. Only the straps on the left side of the base plate are shown in the illustration.
- Remove the seal from the shift housing.
- Remove the shift cable and the selector cable from the shift housing. Refer to
⇒ ["1.10 Gearshift Cable and Selector Cable, Removing and Installing", page 83](#) .
- Lift the upper end -A- of the pressure spring over the tab on the selector bracket.
- Using a screwdriver, press bearing shell notches -arrows- in direction of shift lever guide bearing; break of notches if necessary.

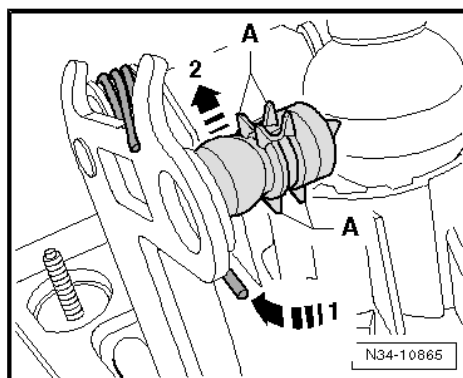




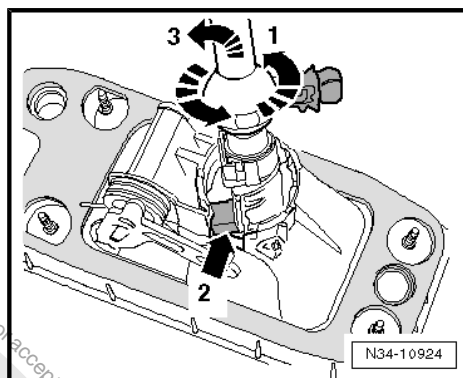
- Pry out bearing shell -A- with shift lever guide -B- from selector housing.
- Then press bearing shell off shift lever guide bearing and remove.



- Pay attention to the guides -A- in the next work procedure.
- They must not break off.
- Lift the bottom end -arrow 1- of the pressure spring onto shoulder on selector bracket.
- Now raise shift lever guide up as far as stop and remove ball studs from selector bracket -arrow 2-.



- Turn the shift lever guide in direction of -arrow 1-.
- The pins -arrow 2- must be in the shift housing opening.
- Move the gearshift lever guide and the gearshift lever in the direction of -arrow 3-.



Assemble the Gearshift Mechanism



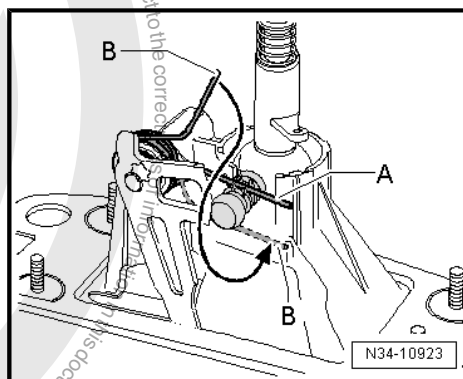
Caution

The lower side of the spring (-arrow 1- → upper illustration) can spring down uncontrolled from the selector bracket shoulder during subsequent handling.

- Push the lower end carefully from the selector bracket shoulder.

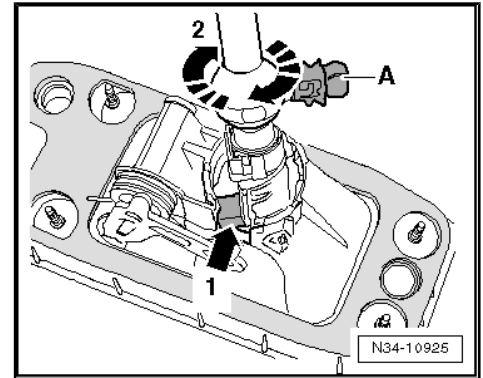
The spring sides then twist “diagonally” with a loud noise.

- Release the tension on the ends -A and B- by turning both ends to the right.
- the ends -A and B- must face in the opposite direction.





- Install the shift lever guide into the shift housing.
- The pins -arrow 1- are still located in the shift housing opening.
- Turn the shift lever guide in direction of -arrow 2- until the ball stud -A- is above the opening in the shift housing.

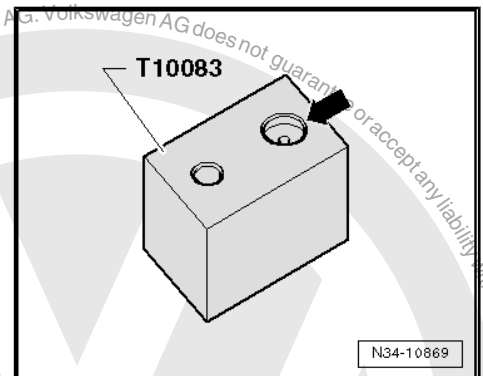


- Place the shift housing with the shift lever guide into the larger cavity -arrow- in the Press Piece - Block - T10083- .



Note

The selector shaft must be removed in order to insert the shifter housing with the selector shaft guide into the Pressing Support .

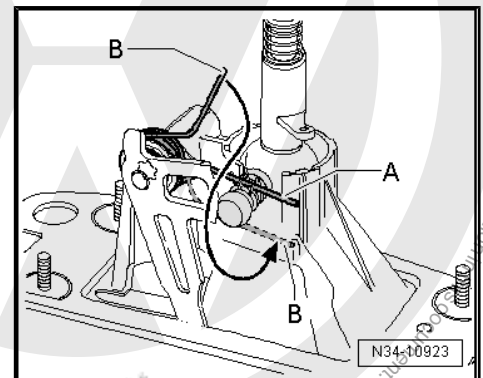


- The shift lever guide must project out of selector housing as far as stop.

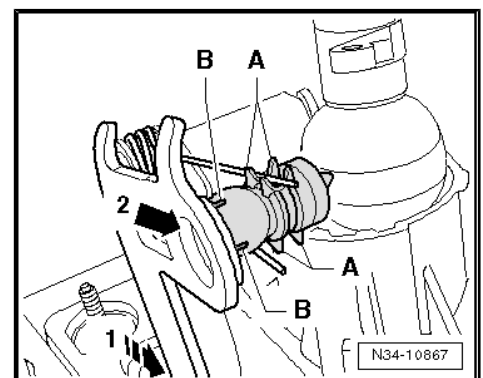


Note

The selector bracket is only partially shown to provide a better illustration.

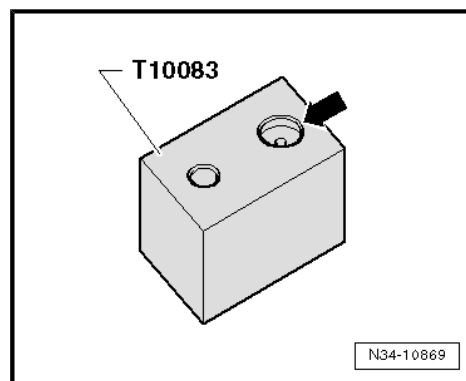


- Insert the end -A- of the pressure spring into the guide from the top.
- Pull the end -B- of the pressure spring downward and insert it next to the guide (toward the ball head).
- Pay attention to the guides (⇒ upper illustration) in the next work procedure.
- They must not break off.
- Carefully remove the shift housing and shift lever guide from the Press Piece - Block - T10083- .
- Move the selector bracket all the way to the rear opposite mounting holes for shift and selector cable -arrow 1-.
- Grease the ball stud.
- Press the ball stud into the selector bracket -arrow 2-.
- The guides -A- and the tabs -B- must not be damaged.

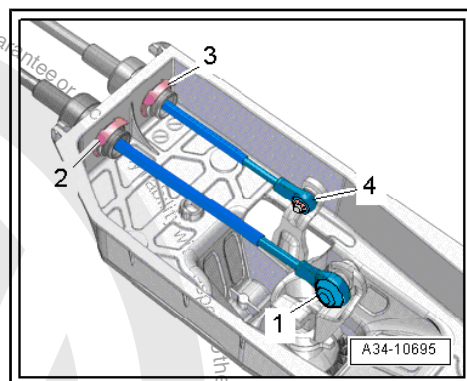
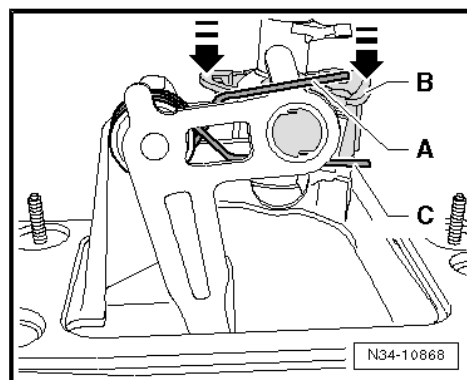




- Place the shift housing with the shift lever guide into the larger cavity -arrow- in the Press Piece - Block - T10083- .



- The shift lever guide must project out of selector housing as far as stop.
- Pry the upper end -A- of the pressure spring over the pin on the selector bracket.
- Use a new bearing shell -B-.
- Grease the bearing shell and the shift lever guide bearing.
- Press the bearing shell all the way onto the shift lever guide bearing.
- Remove the shift housing from the Press Piece - Block - T10083- .
- Insert the bottom end -C- of the pressure spring into the guide.
- Pry the upper end -A- of the pressure spring over the pin on the selector bracket.
- Push the bearing shell into the shift housing -arrows-.
- All retaining tabs must engage.
- If equipped install the shift lever in the shift housing.
- Secure the shift cable and selector cable on the shift housing with lock washers -2 and 3-.
- Install the shift cable -1- on the gearshift lever and selector cable -4- on the selector lever inside the shift housing.





Base Plate, Attaching to Gearshift Housing

- Install a new seal -item 2- ➔ [Item 2 \(page 68\)](#) on the base plate.

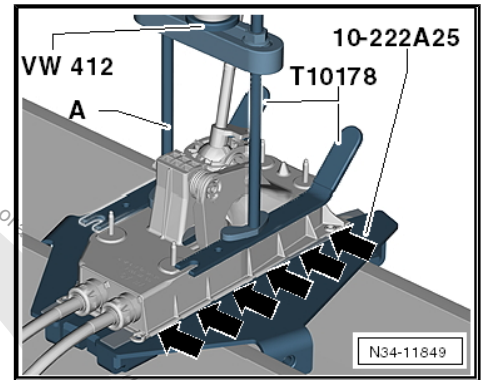


Caution

There is a danger of causing damage to the gearshift housing and base plate.

Tension the gearshift housing only slightly.

- Bend the tabs -arrow- back over all around the base plate to secure it (only the tabs on the left side of the base plate are shown in the illustration).



Note

- ♦ *If only one Over-Center Spring Assembly Tool - T10178- is available, instead of a second Over-Center Spring Assembly Tool - T10178- the Toothed Belt Tensioner - T10020- can be used.*
- ♦ *A 200 x 25 x 5 flat iron can be used in place of an Over-Center Spring Assembly Tool - T10178- .*
- ♦ *A 350 X 30 X 5 flat iron can be used in place of an Engine Support Bridge - Engine Support 25 - 10-222A/25- .*
- The tabs can be bent back over using the Wedge - T10357- .
- A- = Puller - Counterstay , for example -Kukko 22/4-
- Glue a new seal on the gearshift housing .
- Install the gearshift mechanism. Refer to ["1.9 Selector Mechanism, Removing and Installing", page 80](#) .

1.7 Overview - Operating Cables, Removing and Installing



Note

Lubricate the bearing areas and the sliding surfaces. Refer to the Parts Catalog for the grease allocation.



1 - Gearshift Cable

- ☐ Attach to the cable re-
tainer -item 11-
⇒ [Item 11 \(page 75\)](#) .
- ☐ Installation position. Re-
fer to
⇒ [“1.1 Shift Mechanism
Installation Position”](#),
[page 60](#) .
- ☐ Attach to the selector
cable with a cable tie.
Refer to
⇒ [Fig. “Cable Tie Instal-
lation Locations”](#) , [page
77](#)
- ☐ Removing and Instal-
ling. Refer to
⇒ [“1.10 Gearshift Cable
and Selector Cable, Re-
moving and Installing”](#),
[page 83](#) .
- ☐ From 11/2006 changed
fastener on shift lever in-
side shift mechanism
-item 8-
⇒ [Item 8 \(page 68\)](#)

2 - Selector Cable

- ☐ Attach to the cable re-
tainer -item 10-
⇒ [Item 10 \(page 75\)](#) .
- ☐ Installation position. Re-
fer to
⇒ [“1.1 Shift Mechanism
Installation Position”](#),
[page 60](#) .
- ☐ Attach to the shift cable
with a cable tie. Refer to
⇒ [Fig. “Cable Tie Installation Locations”](#) , [page 77](#)
- ☐ Removing and Installing. Refer to
⇒ [“1.10 Gearshift Cable and Selector Cable, Removing and Installing”](#), [page 83](#) .
- ☐ From 11/2006 changed fastener on selector bracket inside shift mechanism -item 6-
⇒ [Item 6 \(page 68\)](#)

3 - Lock Washer

- ☐ Always replace.
- ☐ Discontinued on gearshift mechanisms from 11/2006. Refer to
⇒ [“1.6 Gearshift Lever and Shift Housing, Servicing, from 11/2006”](#), [page 67](#)

4 - Gearshift Housing

5 - Lock Washer

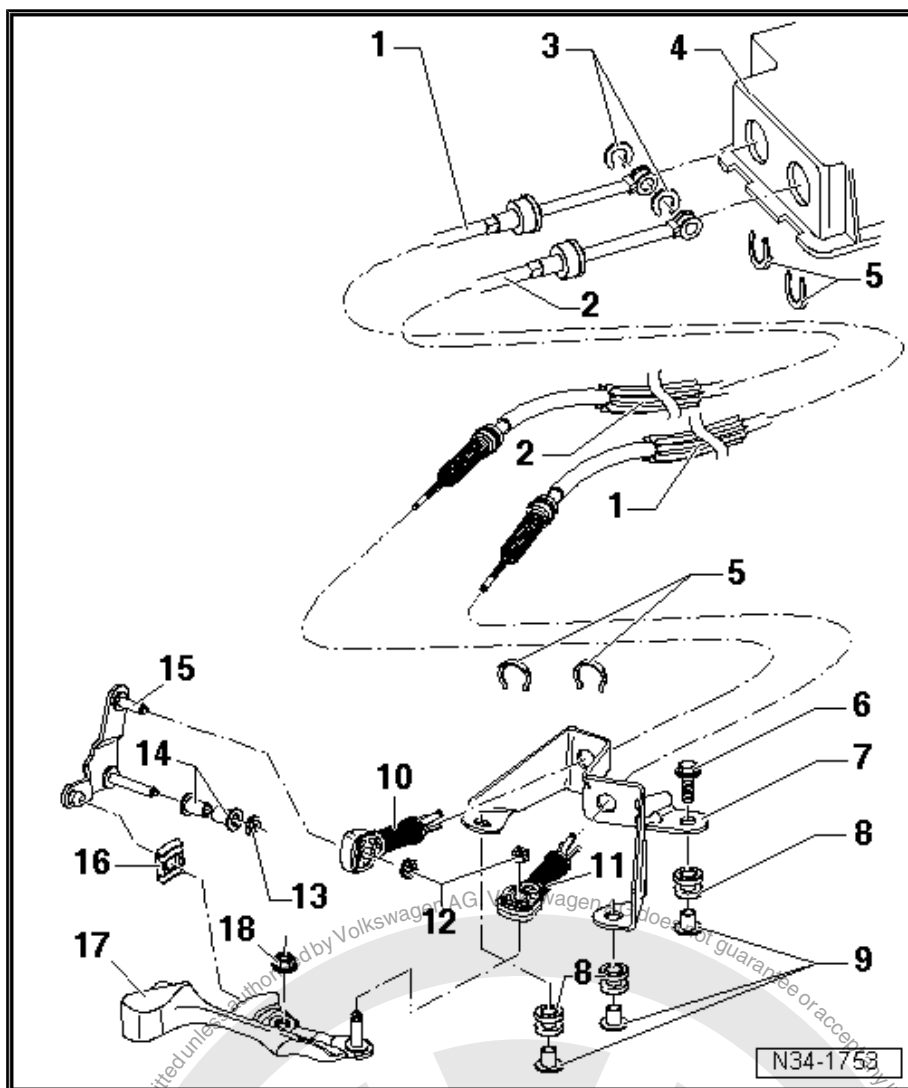
- ☐ Always replace.
- ☐ Be careful not to damage the cables when removing them

6 - Hex Bolt

- ☐ 20 Nm
- ☐ For the cable bracket
- ☐ Quantity: 3

7 - Cable Bracket

- ☐ Can be made of plastic or metal





8 - Grommet

- ☐ Cable mounting bracket to transmission

9 - Spacer

10 - Cable Retainer

- ☐ For attaching the selector cable to the relay lever
- ☐ Adjust the gearshift mechanism after installing. Refer to [⇒ "1.11 Selector Mechanism, Adjusting", page 85](#) .
- ☐ Do not interchange, cable locking mechanisms for selector cable on linkage lever and for shift cable on transmission shift lever are different
- ☐ Is secured with a lock washer in the case of the metal relay lever -item 12- [⇒ Item 12 \(page 75\)](#)
- ☐ From 05/2007 installed in with the plastic relay lever. Refer to [⇒ "1.8 Plastic Relay Lever", page 77](#) .
- ☐ Removing from Plastic Relay Lever. Refer to [⇒ "1.8 Plastic Relay Lever", page 77](#)
- ☐ Installing on Plastic Relay Lever. Refer to [⇒ "1.8 Plastic Relay Lever", page 77](#)
- ☐ Allocation. Refer to [⇒ Fig. "Cable Retainer Allocation", page 76](#) .

11 - Cable Retainer

- ☐ For attaching the shift cable to the transmission shift lever
- ☐ Adjust the gearshift mechanism after installing. Refer to [⇒ "1.11 Selector Mechanism, Adjusting", page 85](#) .
- ☐ Do not interchange, cable locking mechanisms for selector cable on linkage lever and for shift cable on transmission shift lever are different
- ☐ Allocation. Refer to [⇒ Fig. "Cable Retainer Allocation", page 76](#) .

12 - Lock Washer

- ☐ Always replace.
- ☐ Not needed for the plastic relay lever

13 - Lock Washer

- ☐ Always replace.
- ☐ Not needed for the plastic relay lever

14 - Bearing Bushing

- ☐ Not needed for the plastic relay lever

15 - Relay Lever

- ☐ Installation position. Refer to [⇒ Fig. "Selector Lever/Relay Lever Installed Position", page 76](#) .
- ☐ Adjust the gearshift mechanism after installing. Refer to [⇒ "1.11 Selector Mechanism, Adjusting", page 85](#) .
- ☐ Can be made of plastic or metal
- ☐ The metal relay lever is placed in the bushings -item 14- [⇒ Item 14 \(page 75\)](#) and secured with a lock washer -item 13- [⇒ Item 13 \(page 75\)](#) .
- ☐ From 05/2007 plastic relay lever
- ☐ Plastic Relay Lever, Removing and Installing with Cable Retainer. Refer to [⇒ "1.8 Plastic Relay Lever", page 77](#)
- ☐ The bushings and lock washers are not needed with the plastic relay lever

16 - Sliding Shoe

17 - Selector Lever

- ☐ With a balance weight
- ☐ Insert so that master spline aligns with shift rod
- ☐ Installation position. Refer to [⇒ Fig. "Selector Lever/Relay Lever Installed Position", page 76](#) .
- ☐ Adjust the gearshift mechanism after installing. Refer to [⇒ "1.11 Selector Mechanism, Adjusting", page 85](#) .
- ☐ From 06/2006 the cable retainer mounting pin has a smaller diameter. Refer to [⇒ Fig. "As of 06/2006, Smaller Bolt Diameter for the Shift Cable Retainer.", page 76](#)



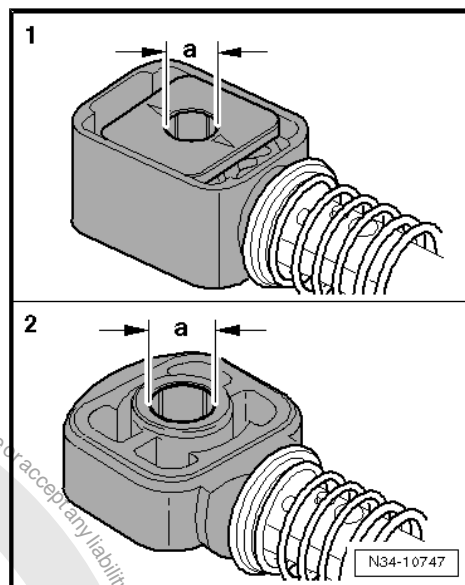
18 - Hex Nut

- ☐ 23 Nm
- ☐ Always replace.
- ☐ Self-locking

Cable Retainer Allocation

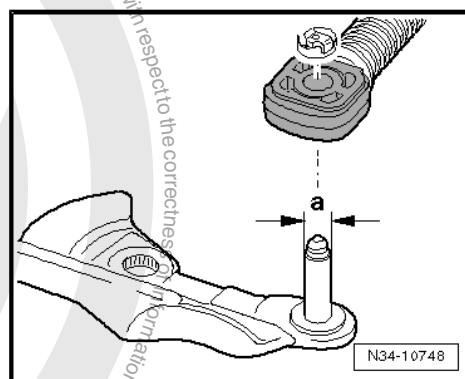
These holes have different diameters.

Cable Retainer for:	Dimension "a"
1. - gearshift cable to gearshift lever from 06/2006	8.5 mm
2. - gearshift cable to gearshift lever to 05/2006	10 mm
2. - selector cable to metal relay lever	8 mm
2. - selector cable to plastic relay lever. Refer to ➔ "1.8 Plastic Relay Lever", page 77	10 mm



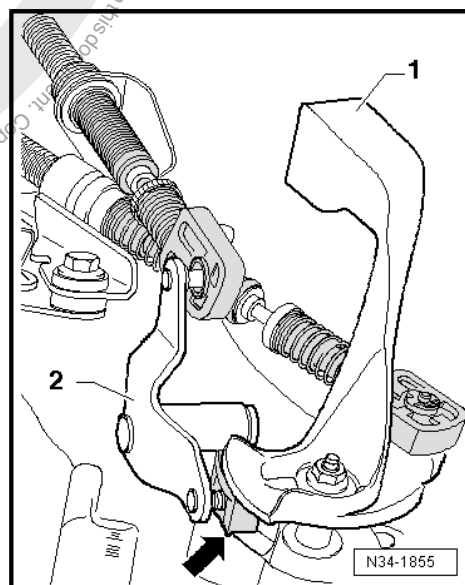
As of 06/2006, Smaller Bolt Diameter for the Shift Cable Retainer.

Mounting Pin for Gearshift Cable Retainer	Dimension "a"
through 05/2006	10 mm
from 06/2006	8.5 mm



Selector Lever/Relay Lever Installed Position

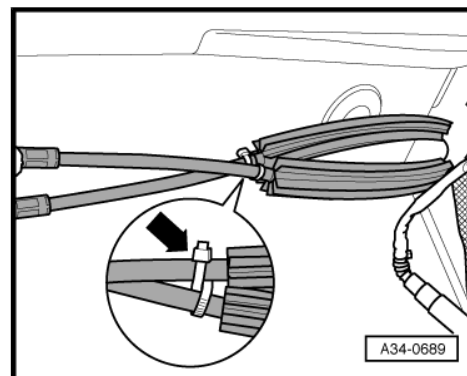
- 1 - Gearshift Lever with Balance Weight
- 2 - The relay lever grips into the sliding rail on the gearshift lever via the sliding shoe -arrow-.





Cable Tie Installation Locations

- Wrap the cable tie -arrow- in a crossover pattern around the cables and attach it as illustrated.



1.8 Plastic Relay Lever

A plastic relay lever is installed from 05/2007. Two versions may be installed.

- ◆ Relay lever with a catch
- ◆ Relay lever with clip

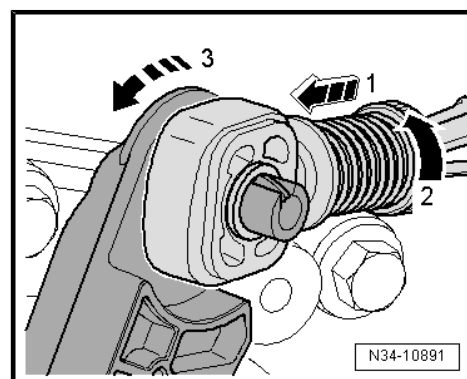
Note the following when removing and installing:

- To remove the relay lever, it is necessary to remove the cable retainer from the selector cable.

This prevents damage to the selector cable.

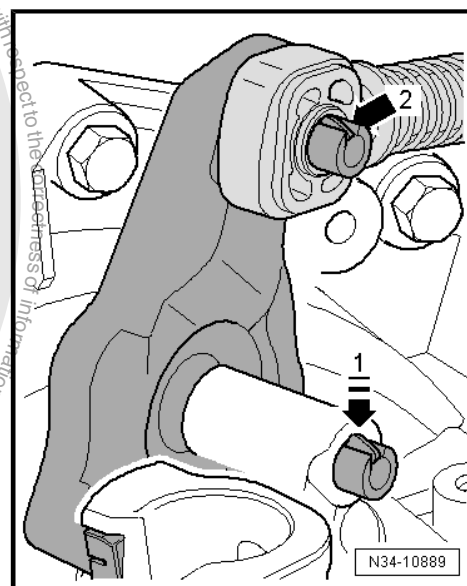
Perform the Following Procedure:

- Pull the securing mechanism all the way forward in direction of -arrow 1- and then unlock to the left in direction of -arrow 2-.
- Push the relay lever forward (direction of -arrow 3-).



Relay Lever with Tab -arrow 1-

- Push the catch -arrow 1- all the way down and remove the relay lever and cable retainer. Move the relay lever in its operating direction.



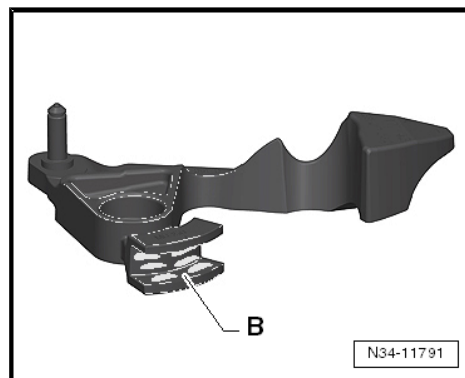
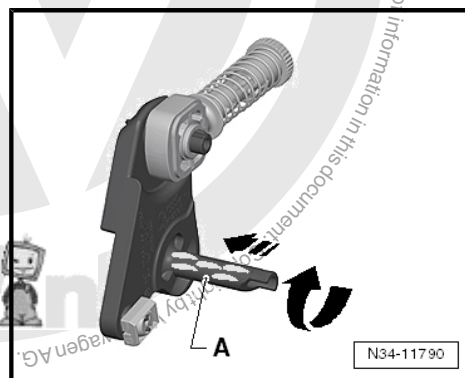


Relay Lever with Clip -arrow 1-.

- Remove the clip -arrow 1- and then remove the relay lever and the cable retainer.

Continuation for All

- The cable retainer must be behind the catch -arrow 2-.
- The cable retainer may only be removed with the relay lever removed. Refer to [⇒ Fig. "Removing the Selector Cable Retainer from the Plastic Relay Lever." , page 79](#)



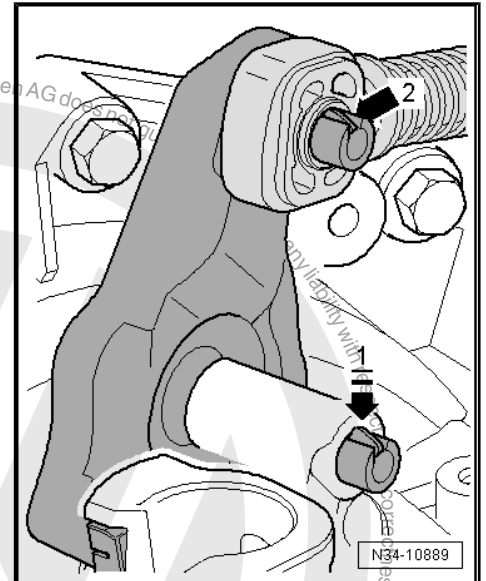
Note

- ♦ For installing, lubricate the following areas very carefully.
 - ♦ Relay lever shaft -A- -arrows-.
 - ♦ Gearshift lever glide track -B-, fits into the relay lever.
 - ♦ The relay lever and gearshift lever in the illustration may differ from the Original Part.
 - ♦ Refer to the Parts Catalog for the grease allocation.
- Press the cable retainer on the relay lever. Refer to [⇒ Fig. "Installing the Cable Retainer" , page 80](#) .
 - Insert the relay lever together with the cable retainer as far as the stop.



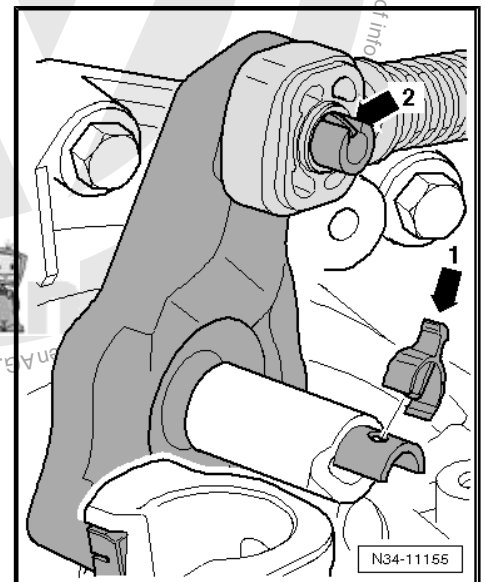
Relay Lever with Tab -arrow 1-

- The catch -arrow 1- secures the relay lever.
- Make sure it engages securely.
- The cable retainer must be behind the catch -arrow 2-.



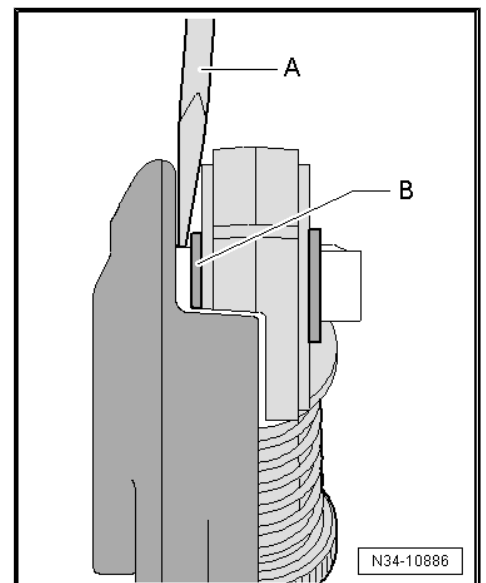
Relay Lever with Clip -arrow 1-.

- The clip -arrow 1- secures the relay lever.
- Make sure the clips locks securely.
- The cable retainer must be behind the catch -arrow 2-.



Removing the Selector Cable Retainer from the Plastic Relay Lever.

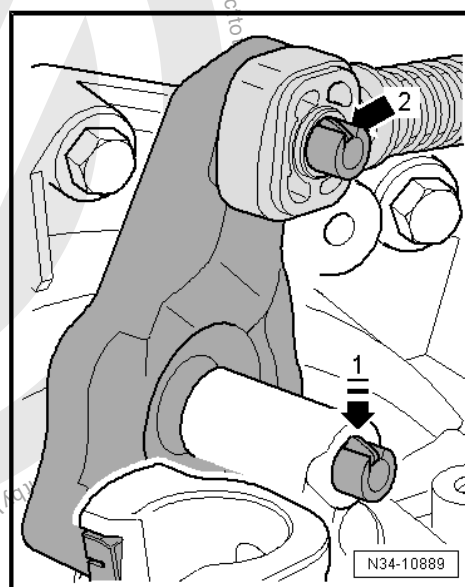
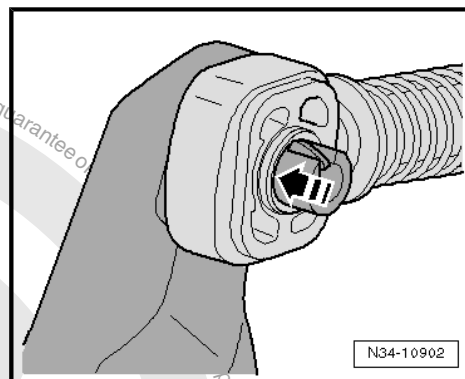
- The relay lever is removed.
- Insert a screwdriver -A- between the bushing -B- and the relay lever.





Installing the Cable Retainer

- The relay lever is removed.
- The cable retainer may only be installed at the bushing -arrow-.
- The cable retainer must move freely on the relay lever.
- It must be behind the tab -arrow 2-.



1.9 Selector Mechanism, Removing and Installing

⇒ ["1.9.1 Removing", page 80](#)

⇒ ["1.9.2 Installing", page 82](#)

1.9.1 Removing

Special tools and workshop equipment required

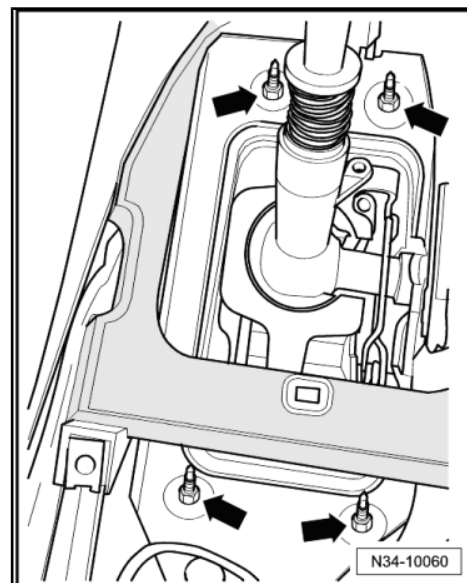
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-

Perform the following procedure:

- Determine whether a coded radio is installed. If so, obtain the anti-theft code.
- Turn off the ignition and disconnect the battery ground strap. Refer to ⇒ [Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing](#) .
- Remove the boot with the shifter knob and noise insulation. Refer to
⇒ ["1.4 Boot with Shifter Knob and Noise Insulation, Removing and Installing", page 64](#) .
- Remove the center console and the center console securing bracket. Refer to ⇒ [Body Interior; Rep. Gr. 68 ; Center Console](#) .



- Remove the nuts -arrows-.
- Remove the complete air filter housing if it located above the gearshift mechanism. Refer to ➤ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing or ➤ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .

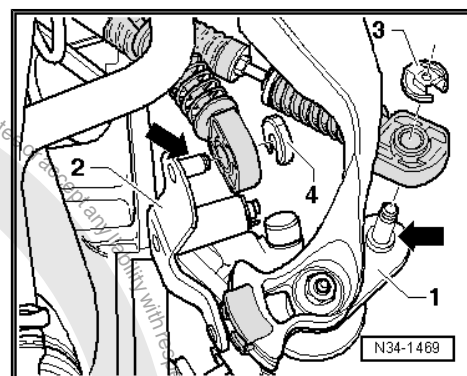


- Remove the gearshift cable lock washer -3- from the gearshift lever -1-.
- Remove the shift cable from the pins.

Metal Relay Lever

- Remove the selector cable circlip -4- from the relay lever -2-.
- Remove the selector cable from the pins.

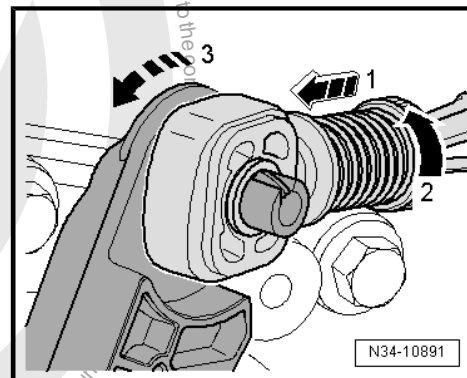
Plastic Relay Lever



Disconnecting the Cable Retainer from the Selector Cable

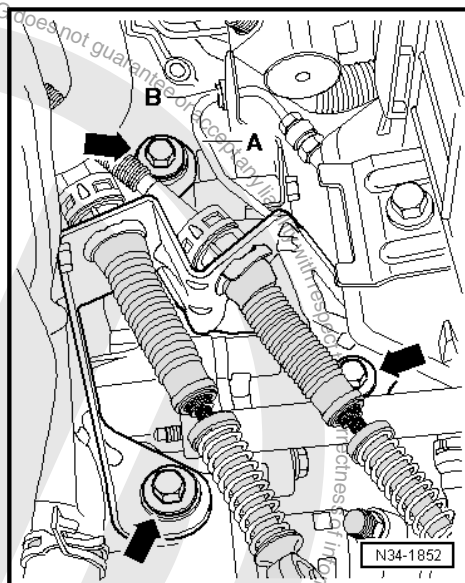
- Pull the securing mechanism all the way forward in direction of -arrow 1- and then unlock to the left in direction of -arrow 2-.
- Push the relay lever forward (direction of -arrow 3-).

Continuation for all Shift Mechanisms





- Remove the cable mounting bracket from the transmission -arrows-. Unclip the hose -A- at the -B- bracket if necessary.
- Remove the noise insulation. Refer to ➤ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Remove the tunnel braces. Refer to ➤ Rep. Gr. 26 .
- Disconnect front exhaust system at double clamp and remove it from the subframe. Refer to ➤ Rep. Gr. 26 .
- Disengage the exhaust system rear section. Refer to ➤ Rep. Gr. 26 .
- Remove the floor panel trim. Refer to ➤ Body Exterior; Rep. Gr. 50 .
- Remove the heat shield under the gearshift mechanism.
- Pivot shift housing downward and remove with cables.



1.9.2 Installing

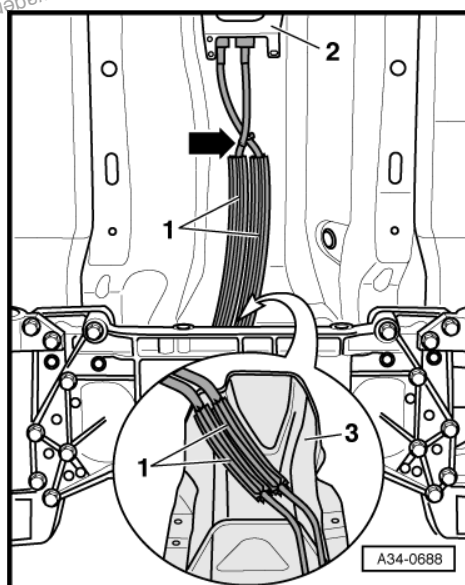
Install in reverse order of removal while. Note the following:

- Align the shift housing so that it is parallel to the body.
- The distance on both sides to the body must be equal.
- Secure the gearshift housing -item 26- ➤ [Item 26 \(page 66\)](#) or -item 16- ➤ [Item 16 \(page 68\)](#) .
- Route the cables -1- from the gearshift mechanism -2- to the transmission as follows:
 - ◆ After the cables cross each other diagonally -arrow-, they must run parallel to each other up to the cable mounting bracket on the transmission.
 - ◆ Make sure the cable tie -arrow- for attaching the cables is installed correctly. Installation location. Refer to ➤ [Fig. "Cable Tie Installation Locations"](#) , page 77 .
 - ◆ The cables must be routed inside the depression in the heat shield -3-.



Note

The heat shield from above is shown in the magnified view.

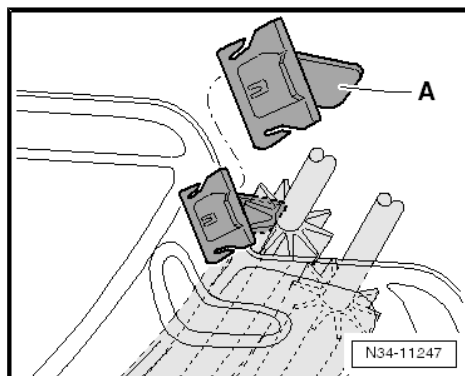


A clip -A- holds the cables and heat shield to each other in place.

- Install the cable bracket on the transmission and tighten it to the specification -item 6- ➤ [Item 6 \(page 74\)](#) .

These holes have different diameters.

Cable Retainer Allocation. Refer to
➤ [Fig. "Cable Retainer Allocation"](#) , page 76

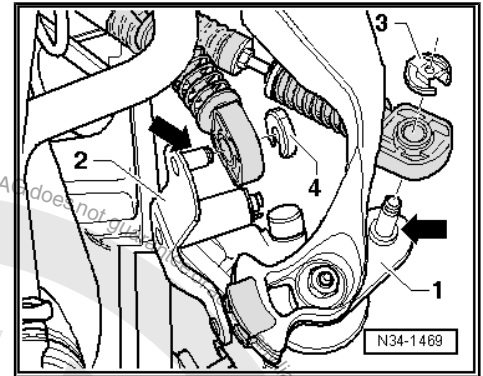




- Apply a small amount of grease on the pins on the transmission shift lever -arrows- -1- and on the relay lever -2-.
- Refer to the Parts Catalog for the grease allocation.
- Replace the lock washers -3- and the lock washer on metal relay lever -4- each time they are removed.
- Secure the shift cable with the lock washer -3- and selector cable with lock washer -4-.

Cable Retainer with Plastic Relay Lever

- Install the relay lever together with the cable retainer. Refer to ⇒ [“1.8 Plastic Relay Lever”, page 77](#) .
- Install the selector cable in the cable retainer.



Continuation for all Shift Mechanisms

- Install the center console. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Center Console
- Install the boot with the shifter knob and noise insulation. Refer to ⇒ [“1.4 Boot with Shifter Knob and Noise Insulation, Removing and Installing”, page 64](#) .
- Install the heat shield under the shift mechanism. Install the underbody cover if it was removed earlier. Refer to ⇒ Body Exterior; Rep. Gr. 50
- Assemble the exhaust system so that it is free of tension and attach the tunnel braces. Refer to ⇒ Rep. Gr. 26 .

Adjust the gearshift mechanism. Refer to ⇒ [“1.11 Selector Mechanism, Adjusting”, page 85](#) .

- If removed, install the air filter housing. Refer to ⇒ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing or ⇒ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .
- Complete the steps after connecting the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .

1.10 Gearshift Cable and Selector Cable, Removing and Installing

⇒ [“1.10.1 Removing”, page 83](#)

⇒ [“1.10.2 Installing”, page 84](#)

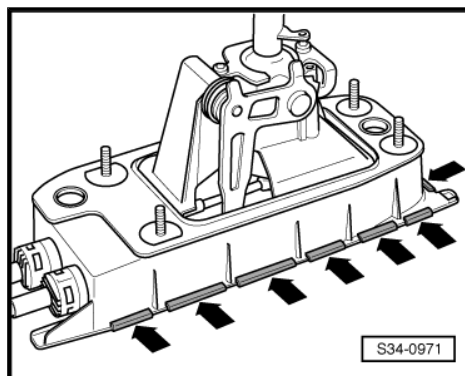
1.10.1 Removing

Perform the Following Procedure:

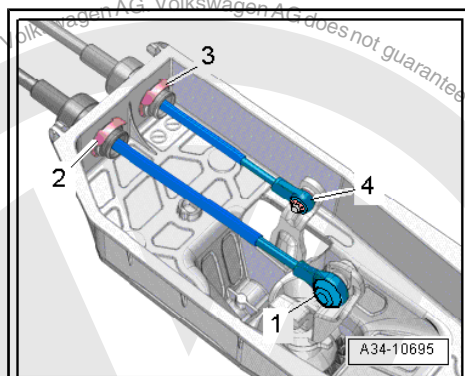
- Remove the selector mechanism. Refer to ⇒ [“1.9.1 Removing”, page 80](#) .



- Bend up the tabs -arrows- on the shift mechanism base plate using a screwdriver and remove the base plate. Only the straps on the left side of the base plate are shown in the illustration.
- Remove the seal.

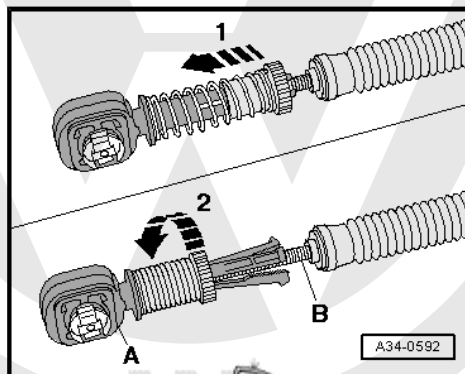


- Remove the lock washers -2 and 3-.
- Remove the shift cable -1- and selector cable -4- from the gearshift lever and selector lever using a screwdriver.
- Remove the shift cable and selector cable from the shift housing.

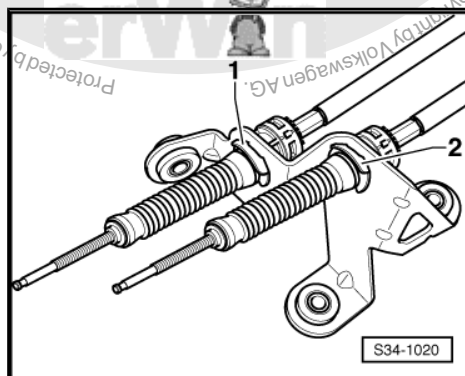


Release the retainers -A- for the shift and selector cables -B- as follows:

- ◆ Push the sleeve forward as far as it will go -arrow 1-.
- ◆ Turn the sleeve to the right as far as it will go -arrow 2- until it engages.
- Remove the retainers from the cables.



- Remove the lock washers -1 and 2-.
- Remove the cable bracket from the cables.

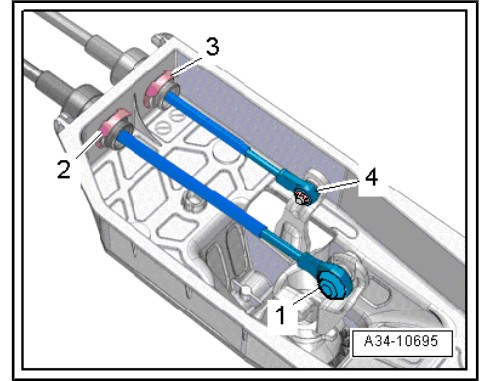


1.10.2 Installing

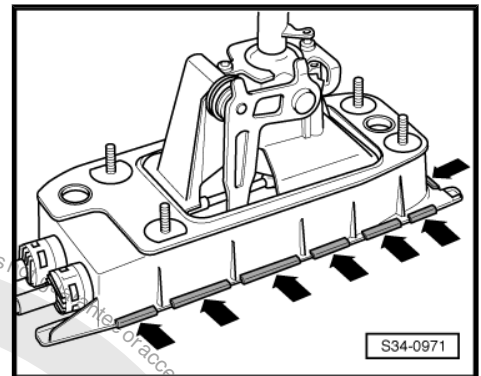
Install in reverse order of removal while. Note the following:



- Secure the shift cable and selector cable on the shift housing with lock washers -2 and 3-.
- Install the shift cable -1- on the gearshift lever and selector cable -4- on the selector lever inside the shift housing.



- Install the base plate with a new seal on the gearshift housing -arrows-. Refer to [⇒ Fig. ““Base Plate, Attaching to Gearshift Housing””, page 73](#).
- Install the gearshift mechanism. Refer to [⇒ “1.9.2 Installing”, page 82](#).
- Adjust the gearshift mechanism. Refer to [⇒ “1.11 Selector Mechanism, Adjusting”, page 85](#).



1.11 Selector Mechanism, Adjusting

[⇒ “1.11.1 Function”, page 87](#)

Special tools and workshop equipment required

- ◆ Connecting Pin T10027A-

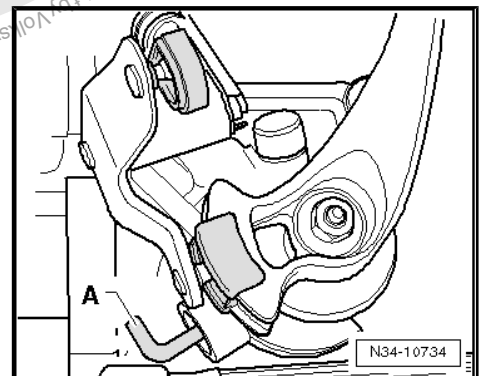


Note

- ◆ *The following is important to make sure the gearshift adjustment is correct:*
- ◆ *Operating and transfer elements of shift mechanism must be in proper condition.*
- ◆ *Shift mechanism must move freely.*
- ◆ *The transmission, clutch and clutch mechanism must also be in proper condition.*
- Transmission in neutral.

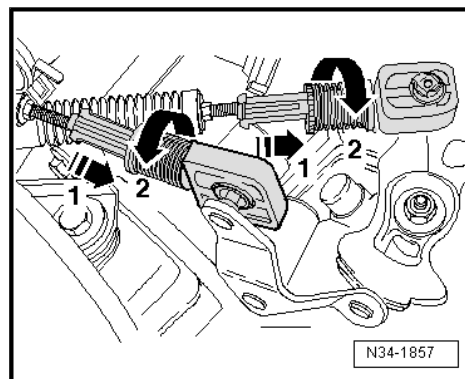
Perform the following procedure:

- Remove the entire air filter housing if the bracket -A- for the selector shaft and the securing mechanism for the shift and selector cables are not accessible. Refer to [⇒ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing](#) or [⇒ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing](#).





- Pull the safety mechanism on the cable retainer for the shift cable and the selector cable all the way forward in direction of -arrow 1- and then lock it to the left in direction of -arrow 2-.

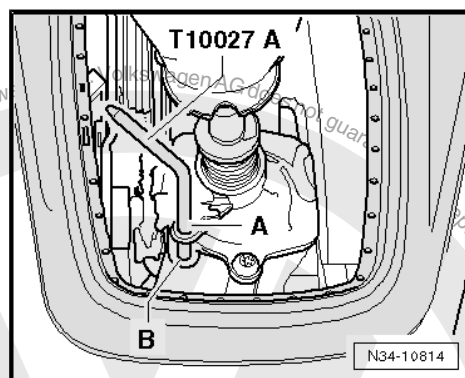
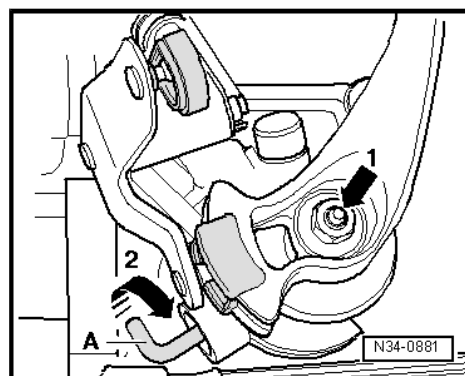


Secure the gearshift shaft as follows:

- Push the gearshift shaft down in direction of -arrow 1-.
- While press the gearshift shaft down, rotate the bracket -A- in direction of -arrow 2- upward and simultaneously press it in until it engages in the gearshift shaft.
- Remove the boot with the shifter knob and cover. Refer to ➔ [“1.4 Boot with Shifter Knob and Noise Insulation, Removing and Installing”, page 64](#) .
- If equipped, remove the noise insulation.

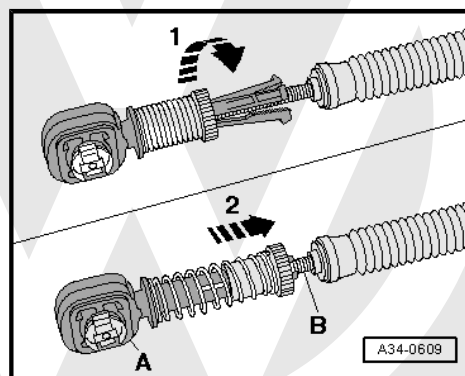
Secure the gearshift shaft as follows:

- Move the gearshift lever into neutral.
- Guide the Connecting Pin - T10027A- through the hole -A- and into the hole -B-.



- Make sure the selector and shift cables -B- are inserted into the retainer -A- without tension.
- Turn the safety mechanism on the cable retainer for the shift cable and selector cable all the way to the right in direction of -arrow 1-.

The spring will push the safety mechanism into the starting position in direction of -arrow 2-.





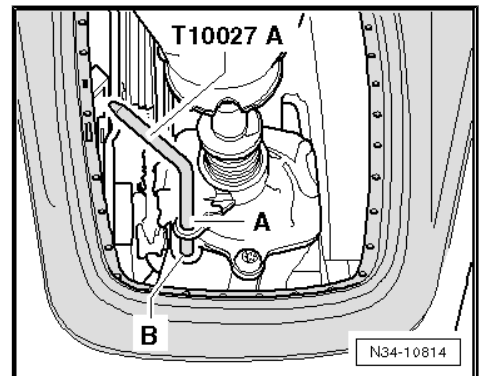
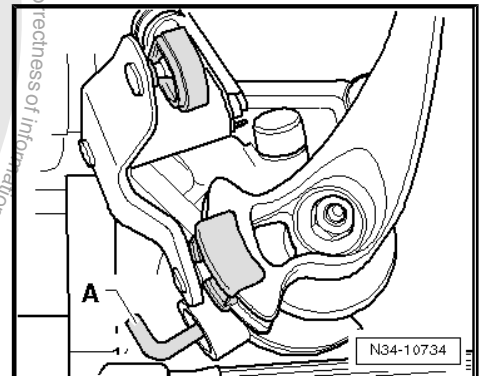
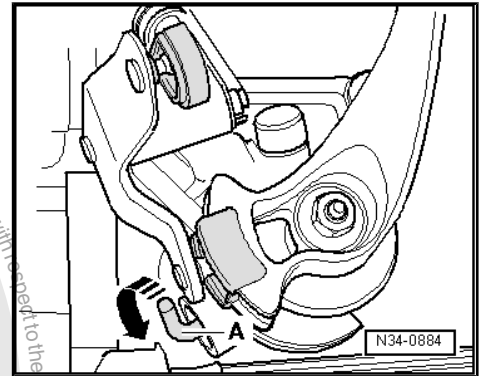
- Then turn the bracket -A- in direction of -arrow- back into its starting position.



Note

The bracket -A- must be pressed out of the selector housing as far as the stop and it must face toward the rear.

- Pull the mandrel out of the holes -A and B-.
- If equipped, install the noise insulation.
- Install the boot with the shifter knob and cover. Refer to ➤ [“1.4 Boot with Shifter Knob and Noise Insulation, Removing and Installing”, page 64](#) .
- Make sure the gearshift shaft moves easily.
- If removed, install the air filter housing. Refer to ➤ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing or ➤ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .



1.11.1 Function

- The shift lever must rest in the 3rd/4th gear selector lever gate when the transmission is in neutral.
- Operate the clutch.
- Move the gearshift lever (selector lever) several times through all the gears. Pay particular attention to the operation of the reverse gear lock.
- Should a gear fail to engage smoothly after engaging it repeatedly, adjust the gearshift mechanism again. Refer to ➤ [“1.11 Selector Mechanism, Adjusting”, page 85](#) .



2 Transmission, Removing and Installing, Jetta from MY 2005, Golf Wagon from MY 2007, , Golf Wagon from MY 2008

⇒ ["2.1 Transmission, Removing", page 88](#)

⇒ ["2.2 Transmission, Installing", page 95](#)

2.1 Transmission, Removing

Special tools and workshop equipment required

- ◆ Engine Support Bridge - 10-222A-
- ◆ Engine Support Bridge - Engine Support Feet - 10-222A/8-
- ◆ Engine Support Bridge - Additional Hooks (2 pc.) -10-222A/2-
- ◆ Engine Support Bridge - Engine Support 3 - 10-222A/3-
- ◆ Transmission Support - 3282-
- ◆ Engine Support - Automatic Transmission Adapter - 10-222A/16-
- ◆ Transmission Support - Mounting Plate 39 - 3282/39-
- ◆ Support Elements for transmission (determine when mounting the Mounting Plate on the Transmission Support)
- ◆ Engine and Gearbox Jack - VAS6931-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-
- ◆ Transmission Support Jig - 3336-
- ◆ Grease for Clutch Disc Shaft Splines - G 000 100-
- ◆ Allocate the grease for gearshift mechanism. Refer to the Parts Catalog.
- ◆ Transmission Support - Pins 29 - 3282/29-
- Determine whether a coded radio is installed. If so, obtain the anti-theft code.
- Disconnect the battery ground cable with the ignition switched off. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Remove the engine cover, if the engine lifting eyes for the Engine Support Bridge - 10-222A- are not accessible.
- Remove the air filter housing if it is located near the battery. Refer to ⇒ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing or ⇒ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .
- Remove the battery and the battery tray. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .
- Remove the shift cable lock washer -arrow 1- from the gearshift lever -A-.



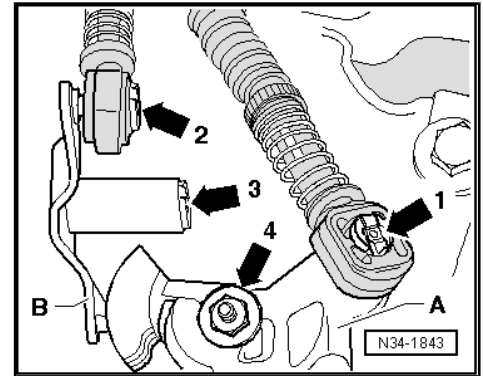
- Remove the shift cable from the pins.

Metal Relay Lever

- Remove the selector cable circlip -2- from the relay lever -B-.
- Remove the selector cable from the pins.
- Remove the lock washer -arrow 3- from the relay lever -B- and then remove the relay lever.

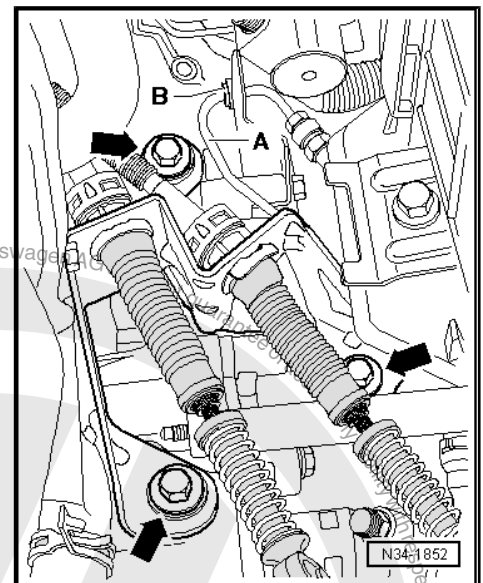
Plastic Relay Lever

- Remove the relay lever together with the cable retainer. Refer to ➤ [“1.8 Plastic Relay Lever”, page 77](#) .



Continuation for All

- Remove the nut -arrow 4- and then remove the transmission shift lever -A- (⇒ previous illustration).
- Remove the cable bracket from the transmission -arrows-.
- Tie up the shift cable and the selector cable.
- Remove the bracket -B- from the transmission and pull it off the hose/line assembly -A-.



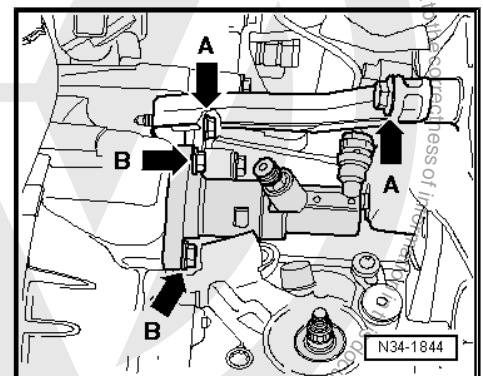
- Remove the transmission support -arrows A-.
- Remove clutch slave cylinder -arrow B- and lay aside, secure with wire, do not open line system.



Caution

The clutch slave cylinder could be damaged.

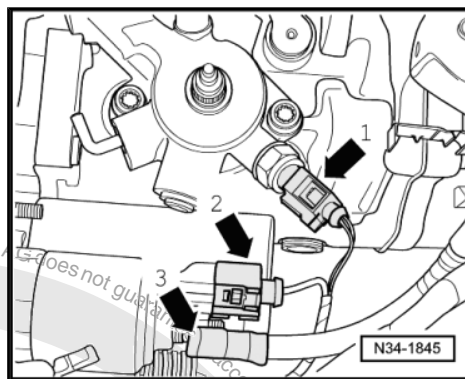
- ◆ *If the clutch slave cylinder is removed from the transmission with pipe/hose line still connected, do not press the clutch pedal.*



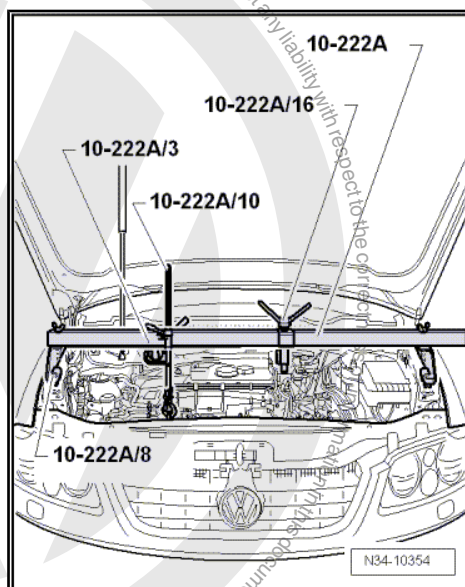
- Disconnect the ground cable from the upper engine/transmission bolt.



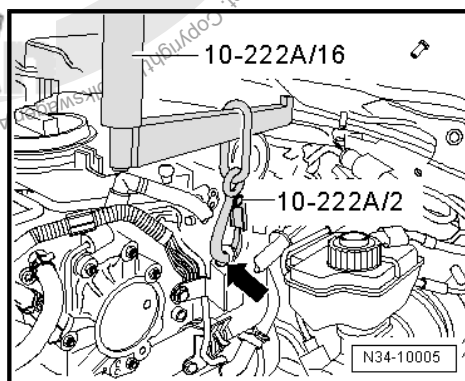
- Disconnect the connector -arrow 1- from the Back-Up Lamp Switch - F4- .
- Remove the connector -arrow 2- and wire -arrow 3- from the starter.
- Remove the upper bolt from the starter.
- Remove the upper engine/transmission bolts.
- If there are hose and cable connections located near the engine lifting eyes for the Engine Support Bridge - 10-222A- , these must now be removed.



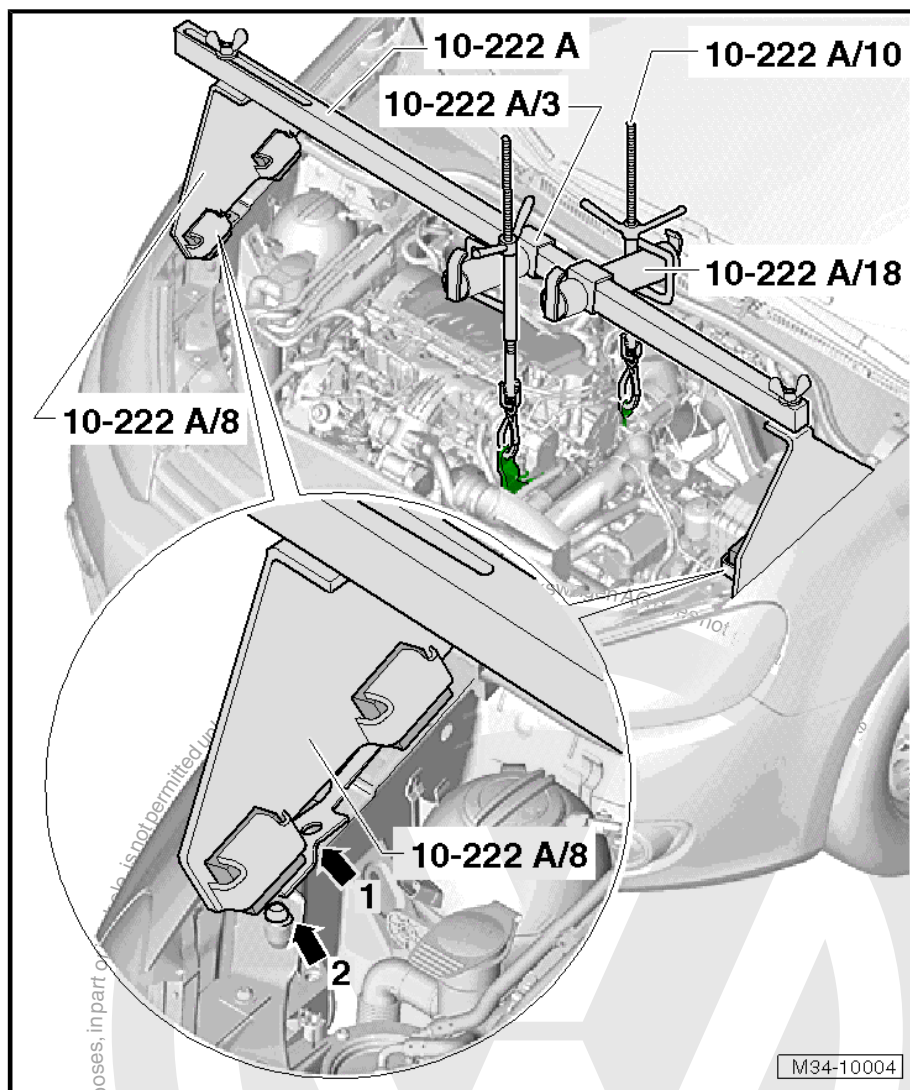
- Position the Engine Support Bridge - 10-222A- with the Engine Support Bridge - Engine Support Feet - 10-222A/8- , the Engine Support Bridge - Engine Support 3 - 10-222A/3- and the Engine Support - Automatic Transmission Adapter - 10-222A/16- in front of the hood gas struts.
- Engage the right front Engine Support - Bracket w/Spindle and Hook - 10-222A/10- on the engine.



- Engage the left rear Engine Support Bridge - Additional Hooks (2 pc.) - 10-222A /2- on the engine -arrow-.
- Then connect the Engine Support Bridge - Additional Hooks (2 pc.) - 10-222A /2- with the Engine Support - Automatic Transmission Adapter - 10-222A/16- .



Vehicles with 1.6L 77 kW Diesel Engine



- Install the Engine Support Bridge - 10-222A- .
- Use:
 - ◆ Engine Support Bridge - Engine Support 3 - 10-222A/3-
 - ◆ Engine Support Bridge - Engine Support Feet - 10-222A/8-
 - ◆ Engine Support - Bracket w/Spindle and Hook - 10-222A/10-
 - ◆ Engine Support Bridge - Engine Support 18 - 10-222A /18-
- Position the Engine Support Bridge - Engine Support Feet 10-222A/8- on the upper longitudinal members, directly in front of the ridge (-arrow 1-) next to the bolt (-arrow 2-).
- Attach the Spindle and the Engine Support - Bracket w/Spindle and Hook - 10-222A/10- in the left lifting eye on the engine.

Continuation for all Vehicles

- Preload the engine/transmission assembly slightly using the spindles.
- Loosen the left front wheel bolts.
- Raise the vehicle and remove the left front wheel.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .

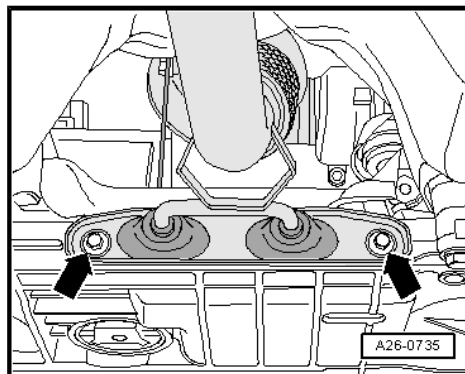


- Remove the lower part of the left front wheel housing liner. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner .
- Remove all wires from the transmission.
- Separate the exhaust system at the double clamp and remove the front exhaust pipe bracket from the subframe -arrows-. Refer to ➤ Rep. Gr. 26 ; Exhaust System .
- Tie up the front exhaust pipe.

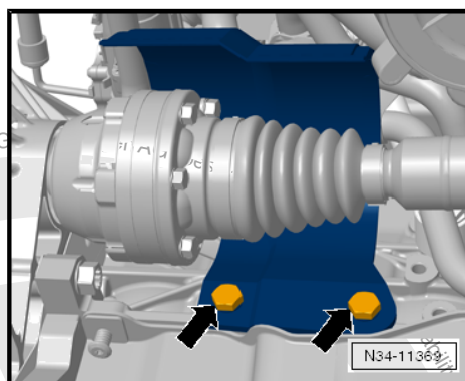


Note

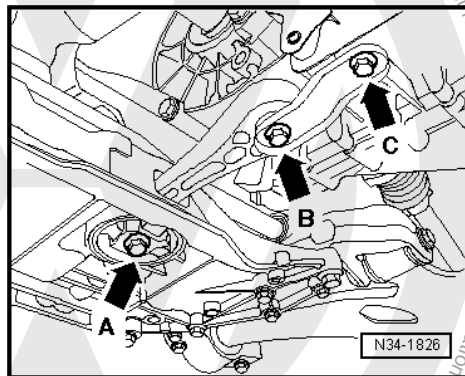
Do not bend the decoupling element in the front exhaust pipe more than 10° or it will be damaged.



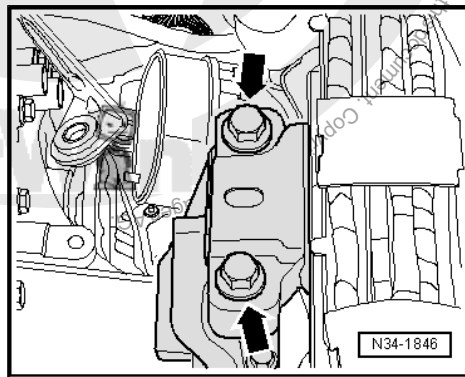
- If equipped, remove the heat shield above the right driveshaft -arrows-.
- Remove the driveshafts from the flange shafts and tie them up as high as possible. Be careful not to damage the surface protection.



- Remove the pendulum support -arrows A, B and C-.



- Remove the left assembly mounting hex bolts -arrows- from the transmission mounting.



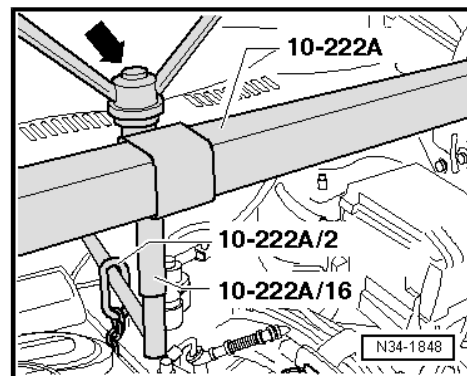


- Bring engine/transmission assembly into angled position by lowering it via the spindles on the Engine Support Bridge - 10-222A- .

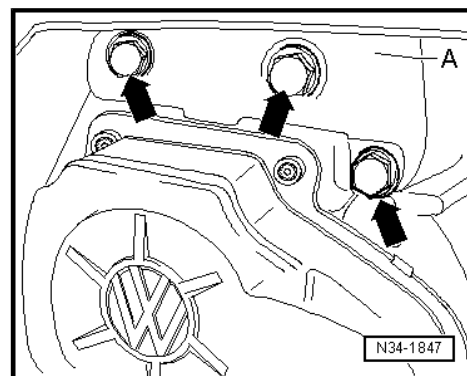


Note

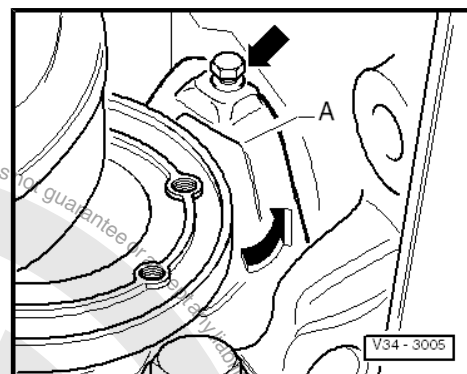
- ◆ Lower the threaded spindle on the Engine Support - Automatic Transmission Adapter - 10-222A/16- using the wing nut until the threads are flush -arrow-.
- ◆ Pay attention to all of the lines when lowering the transmission.



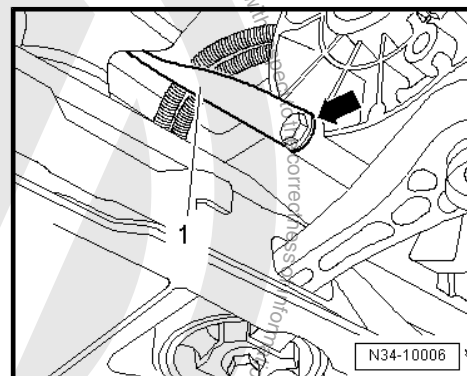
- The bolts -arrows- for the transmission bracket -A- must be accessible.
- Remove the transmission bracket -A- -arrows-.



- If installed, remove small cover plate -A- for flywheel behind right flange shaft -arrows-.



- Remove the exhaust system brace -1- from the transmission -arrow-, if equipped.

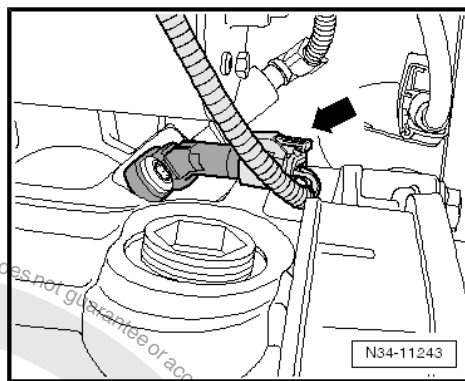




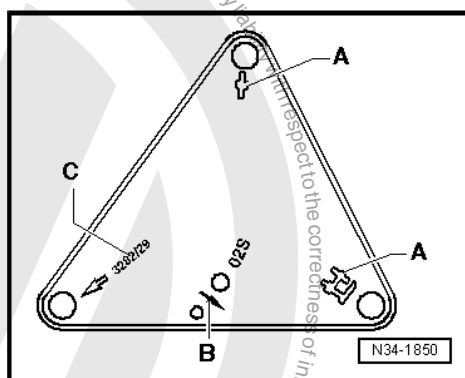
- Transmission on vehicles with Start/Stop System: disconnect the connector -arrow- from the Transmission Neutral Position Sensor - G701- .
- Remove the starter. Refer to ➔ Electrical Equipment; Rep. Gr. 27 ; Starter .

Align the Transmission Support - 3282- with the Transmission Support - Mounting Plate 39 - 3282/39- in order to remove the "0A4" transmission.

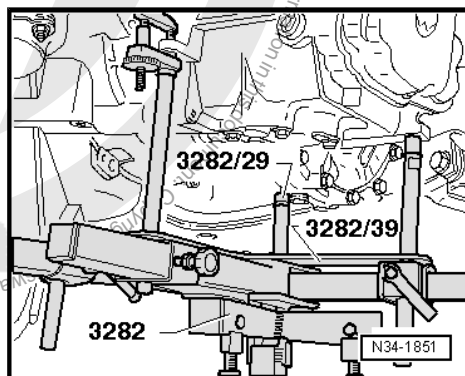
- Insert the Transmission Support - 3282- into the Engine and Gearbox Jack - VAS6931- .
- Align the arms of the Transmission Support so that they match up with the holes in the Adjusting Plate .



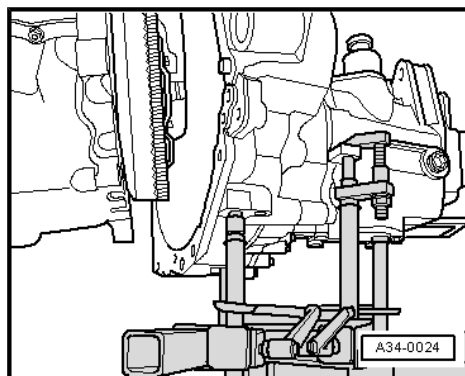
- Install the Mounting Elements -A and C-, on the Adjusting Plate , as illustrated.
- Position the Engine and Transmission Jack under the vehicle. The arrow symbol -B- on the Adjusting Plate points in the direction of travel.



- Align the Adjusting Plate so that it is parallel to the transmission and secure the safety support to the transmission.
- Install the Transmission Support - Pins 29 - 3282/29- into the hole for the pendulum support bolt on the transmission.
- Remove the lower engine/transmission bolts.



- Remove the transmission from the alignment bushings and carefully move it toward the subframe.
- Rotate the transmission near the differential downward.
- Push the engine forward slightly with a second technician.



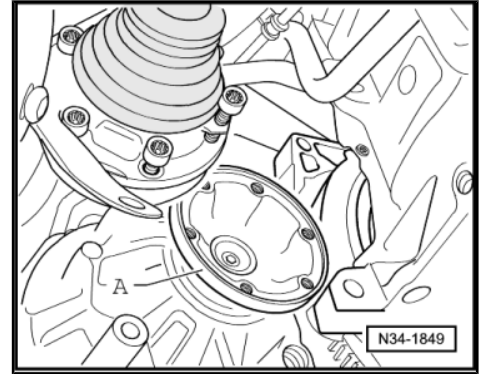


- Carefully lower transmission while guiding right flange shaft -A- into flywheel/intermediate plate area as shown.
- Use spindles on the Transmission Support - 3282- to adjust the position of the transmission while lowering it.



Note

Pay attention to all of the lines when lowering the transmission.



2.2 Transmission, Installing

⇒ ["2.2.1 Tightening Specifications", page 101](#)



Note

Refer to "Transmission, Removing" to get a list of the special tools needed. Refer to

⇒ ["2 Transmission, Removing and Installing, Jetta from MY 2005, Golf Wagon from MY 2007, , Golf Wagon from MY 2008", page 88](#) .

Pay attention to the following list for the subject -"Transmission Fluid, Checking and Filling" .

"Transmission Fluid, Checking and Filling"				
		»No«	»Yes«	»Yes«
Transmission	Original Part	X		
	no oil outlet	X		
	Was completely disassembled		X before installation -item 3- ⇒ Item 3 (page 203) transmission fluid capacity. Refer to ⇒ "2.3 Codes, Transmission Allocation and Capacities", page 3	
	Was partially disassembled • (the transmission housing and the clutch housing were not separated from each other)			X after installation. Refer to ⇒ "6 Transmission Fluid, Checking and Filling", page 176 .

- Clean any locking compound residue from all threaded holes using a tap.
- Always replace self-locking bolts and nuts.
- Make sure the alignment sleeves for centering the engine/transmission are installed inside the cylinder block. Install them if necessary.



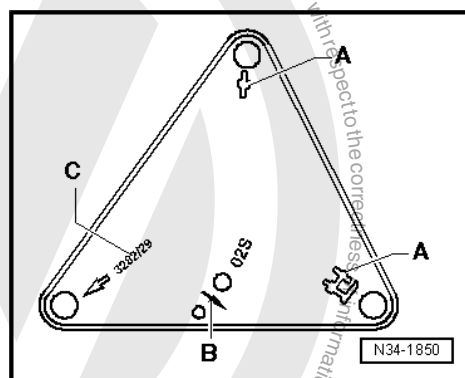
If the alignment sleeves are missing, it will be difficult to shift, there will be clutch problems and the transmission may make noises (loose rattling).

- Make sure the intermediate plate fits correctly on the engine.
- Clean the driveshaft splines and grease lightly with Grease For Clutch Disc Shaft Splines - G 000 100- .

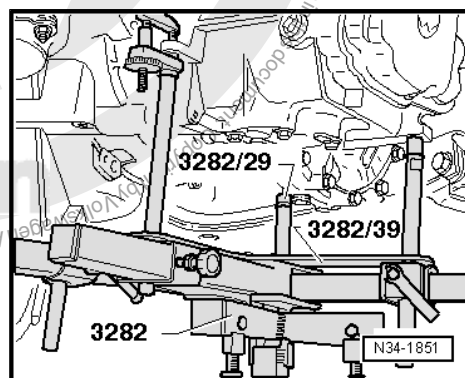
It must be possible to slide the clutch plate back and forth on the input shaft.

Align the Transmission Support - 3282- with the Transmission Support - Mounting Plate 39 - 3282/39- in order to install the "0A4" transmission.

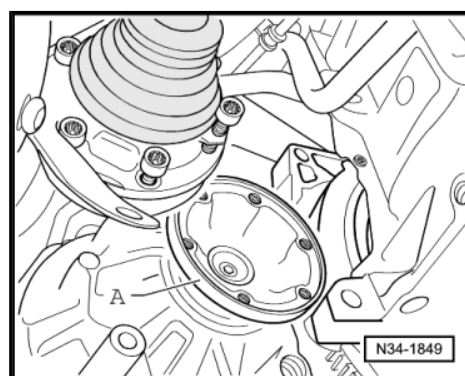
- Align the arms of the Transmission Support so that they match up with the holes in the Adjustment Plate .
- Install the Mounting Elements -A and C- (Transmission Support - Pins 29 - 3282/29-) on the Adjusting Plate as illustrated.
- Place the transmission on the Engine and Gearbox Jack .
- Align the Adjustment Plate so that it is parallel to the transmission.



- Install the Transmission Support - Mounting Plate 29 - 3282/29- into the hole in the transmission for the pendulum support bolt.
- Position the Engine and Gearbox Jack under the vehicle. The -arrow symbol B- on the adjusting plate points in direction of travel.
- Using the spindles of the Transmission Support - 3282- , screw the transmission downward in the area of the differential.
- Push the engine forward slightly with a second technician.

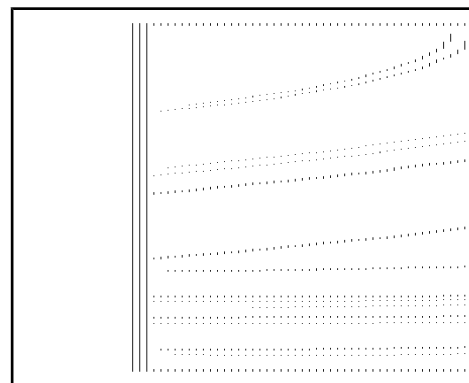


- Then carefully lift transmission, when doing so, guide the right flange shaft -A- in the area of the flywheel/intermediate plate as shown.
- Using the spindles of the Transmission Support - 3282- , screw the transmission upward in the area of the differential.
- Lift the transmission to engine.
- A second technician must continue to press the engine forward.
- Align the transmission with the engine and install it.
- Install the lower bolts for attaching the engine to the transmission and tighten them to the tightening specification. Refer to ➔ ["2.2.1 Tightening Specifications", page 101](#) .
- After the transmission is attached to the engine, remove the Engine and Gearbox Jack from the transmission.

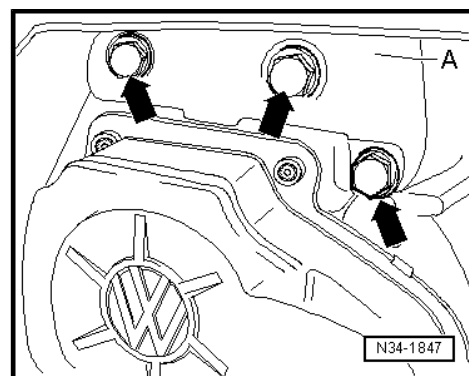




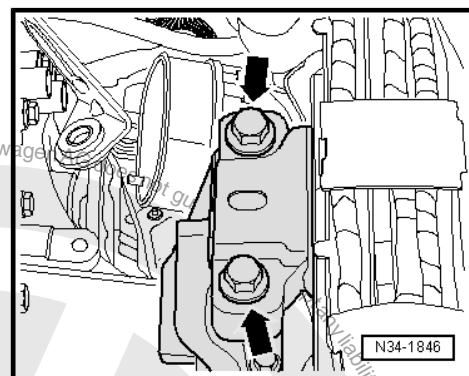
- Install small cover plate, if equipped, behind right flange shaft -A- -arrows-.
- Install the upper engine/transmission connecting bolts and tighten to the tightening specification. Refer to [⇒ “2.2.1 Tightening Specifications”, page 101](#) .



- Attach the bracket -A- with the new bolts to the transmission -arrows- and tighten them to the tightening specification. Refer to [⇒ “4.1 Overview - Subframe Mount”, page 173](#) .



- Align the engine/transmission in its installed position. Lift until the transmission bracket is touching the transmission mount completely.



Caution

There is a risk of damaging the threads in transmission bracket by inserting bolts at an angle.

- ◆ *Before installing bolts -arrows-, transmission bracket and transmission mount support arm must be absolutely parallel to each other. If necessary, lift the back of the transmission using the Engine and Gearbox Jack .*



Note

Install the engine/transmission mount free of tension. Refer to ⇒ Rep. Gr. 10 ; Engine, Removing and Installing .

- Install new bolts -arrows- of left assembly mounting into transmission mount and tighten to tightening specification. Refer to [⇒ “4.1 Overview - Subframe Mount”, page 173](#) .

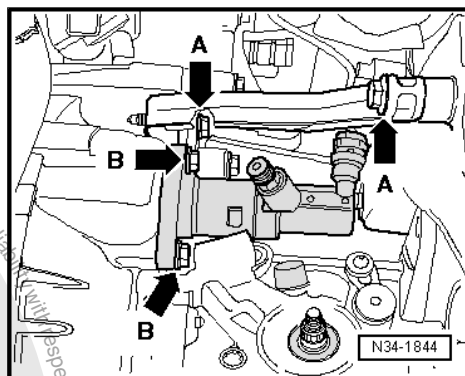


WARNING

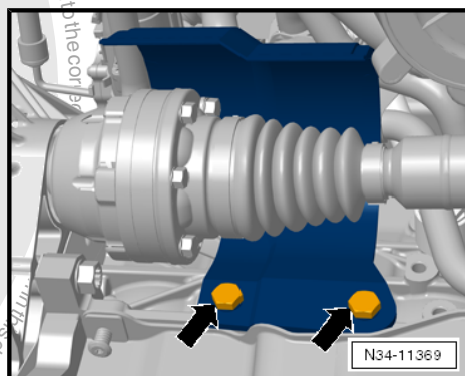
Only remove Engine Support Bridge - 10-222A- when the left and right subframe mount bolts are tightened to the tightening specification.



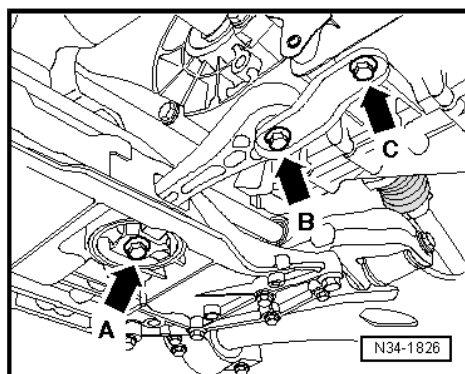
- Install the clutch slave cylinder and tighten the bolts to the specification -item 15- ➤ [Item 15 \(page 39\)](#) -arrows B-.
- Attach the transmission support -arrows A- and tighten it to the tightening specification. Refer to ➤ ["4.1 Overview - Subframe Mount", page 173](#) .
- Attach the drive axles to the transmission. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Removing and Installing .



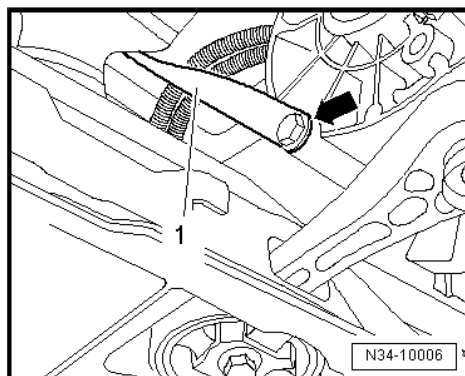
If equipped install the drive axle heat shield -arrows-. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Overview and Servicing; Drive Axle Heat Shield .



- Install the pendulum support with new bolts -A arrows-, -B and C-. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 40 ; Subframe; Overview - Subframe .
- Assemble the exhaust system and then attach the exhaust system bracket it to the subframe. Refer to ➤ Rep. Gr. 26 ; Exhaust System .

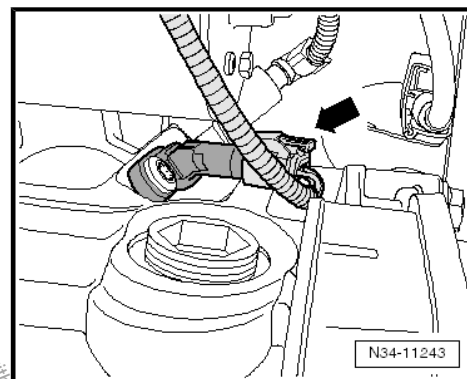


- Install the turbocharger strut -1- on the transmission and tighten the bolt -arrow- to the specification. Refer to ➤ Rep. Gr. 26 ; Exhaust System .

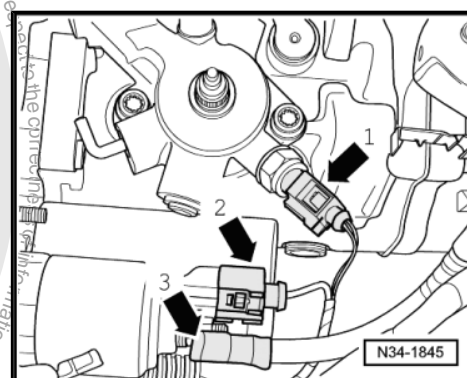




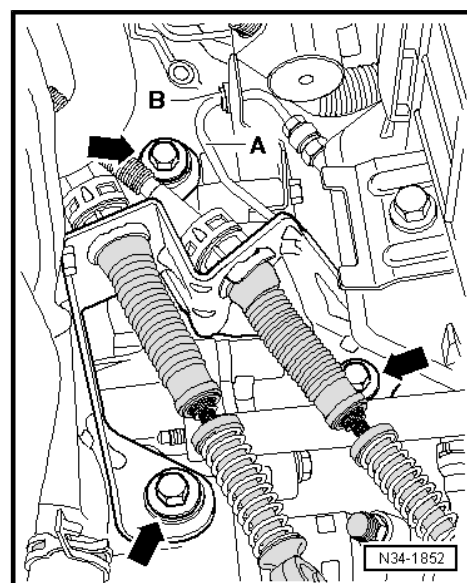
- Transmission on vehicles with Start/Stop System: connect the connector -arrow- to the Transmission Neutral Position Sensor - G701- .



- Connect the connector -1- to the Back-Up Lamp Switch - F4- .
- Install the starter, connect the connector -arrow 2- and attach the wire -arrow 3-. Refer to ➔ Electrical Equipment; Rep. Gr. 27 ; Starter .
- Attach the ground cable to the upper engine/transmission connecting bolt.



- Attach the bracket -B- to the transmission.
- Press the hose/line assembly -A- into the bracket -B- on the transmission.
- Attach the cable mounting bracket to the transmission and tighten the bolts -arrows- to the tightening specification -item 6- ➔ [Item 6 \(page 74\)](#) .





- Install the gearshift lever -A-.
- Tighten the nut -arrow 4- to the tightening specification -item 18- ➔ [Item 18 \(page 76\)](#) .
- Coat the pin on the gearshift lever with a small amount of grease -A-.

Allocate the grease for gearshift mechanism. Refer to the Parts Catalog.

- Attach the shift cable to the gearshift lever -arrow 1-.

Metal Relay Lever

- Install the relay lever -B- and secure it with a lock washer -arrow 3-.
- Apply a small out of grease to the pin on the relay lever -B-.

Allocate the grease for gearshift mechanism. Refer to the Parts Catalog.

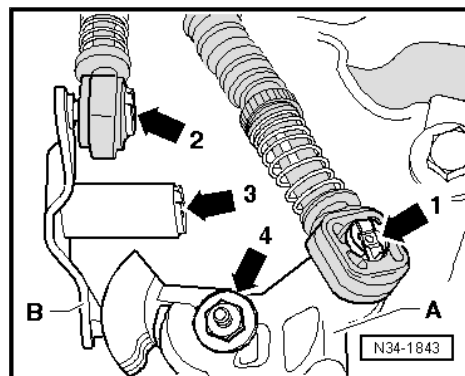
- Attach the shift cable to the gearshift lever -arrow 2-.

Plastic Relay Lever

- Install the relay lever together with the cable retainer. Refer to ➔ ["1.8 Plastic Relay Lever", page 77](#) .

Continuation for All

- Adjust the gearshift mechanism. Refer to ➔ ["1.11 Selector Mechanism, Adjusting", page 85](#) .
- Install the battery tray, battery cover and the battery. Refer to ➔ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .
- Install the engine cover and the air filter housing. Refer to ➔ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing or ➔ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .
- Connect the battery and follow the procedure regarding what to do after connecting a battery. Refer to ➔ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Install the lower part of the left front wheel housing liner. Refer to ➔ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner .
- Install the noise insulation. Refer to ➔ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Install the wheel. Refer to ➔ Suspension, Wheels, Steering; Rep. Gr. 44 ; Wheel Installation Tightening Specifications .

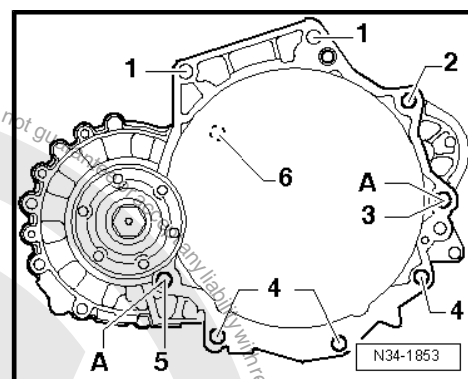




2.2.1 Tightening Specifications

Transmission to gasoline engine

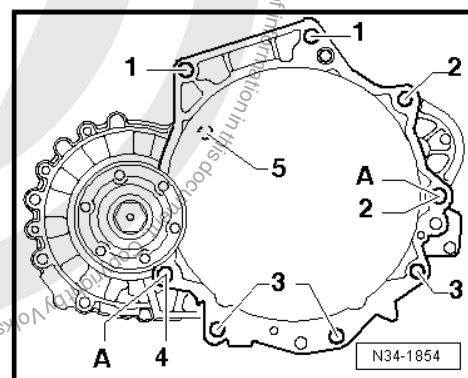
Item	Bolt	Quantity	Nm
1	M 12 x 65	2	80
2	M 12 x 150 ◆ Also starter to transmission	1	80
3	M 12 x 165 ◆ Also starter to transmission	1	80
4	M10 x 50	3	40
5	M 12 x 85	1	80
6	M6 x 8 ◆ Small flywheel cover plate	1	10



-A- alignment sleeves for centering

Transmission to diesel engine

Item	Bolt	Quantity	Nm
1	M12 x 55	2	80
2	M 12 x 150 ◆ Also starter to transmission	2	80
3	M10 x 50	3	40
4	M 12 x 60	1	80
5	M6 x 8 ◆ Small flywheel cover plate	1	10



-A- alignment sleeves for centering

Component	Nm
Bracket for lower starter plug wires	20
Ground cable to engine/transmission bolt	20



3 Transmission, Removing and Installing, Jetta from MY 2011

⇒ [“3.1 Transmission, Removing, Jetta MY 2011, 2.0L 85 kW”, page 102](#)

⇒ [“3.2 Transmission, Installing, Jetta MY 2011 with 2.0L 85 kW Engine”, page 111](#)

⇒ [“3.3 Transmission, Removing, Jetta MY 2011, 2.5L 125 kW”, page 120](#)

⇒ [“3.4 Transmission, Installing, Jetta MY 2011, 2.5L 125 kW”, page 130](#)

⇒ [“3.5 Transmission, Removing, Jetta MY 2011, 1.8L 125 kW”, page 137](#)


⇒ [“3.6 Transmission, Installing, Jetta MY 2011, 1.8L 125 kW”, page 148](#)

⇒ [“3.7 Transmission, Removing, Jetta 2011 with Turbo Diesel Engine”, page 157](#)

⇒ [“3.8 Transmission, Installing, Jetta 2011 with Turbo Diesel Engine”, page 165](#)

3.1 Transmission, Removing, Jetta MY 2011, 2.0L 85 kW

Special tools and workshop equipment required

- ◆ Engine Support Bridge - 10-222A-
- ◆ Transmission Support - 3282-
- ◆ Support Elements for transmission (determine when mounting the Mounting Plate on the Transmission Support)
- ◆ Engine and Gearbox Jack - VAS6931-
- ◆ Tensioning Strap - T10038-
- ◆ Engine Support - Basic Set - T40091-
- ◆ Engine Support - Supplement Kit - T40093A-
- ◆ Spindle from the Seal Installer - Driver Set - 3066- or bolt M8 x 105
- ◆ Transmission Support - Pins 29 - 3282/29-
- ◆ Transmission Support - Mounting Plate 39 - 3282/39-
- ◆ Seal Installer - One-Piece Seal - T10148-
- ◆ Grease for Clutch Disc Shaft Splines - G 000 100- 
- ◆ Allocate the grease for gearshift mechanism. Refer to the Parts Catalog.
- Determine whether a coded radio is installed. If so, obtain the anti-theft code.
- Disconnect the battery ground cable with the ignition switched off. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Install the air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .
- Remove the battery and the battery tray. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .



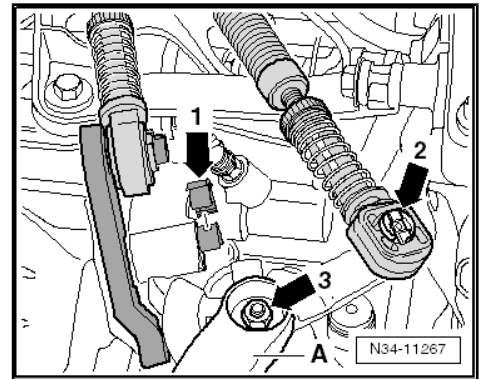
- Remove the cable retainer from the selector cable. Refer to ⇒ [“1.8 Plastic Relay Lever”, page 77](#) .
- Remove the clip -arrow 1- and then remove the relay lever and the cable retainer.



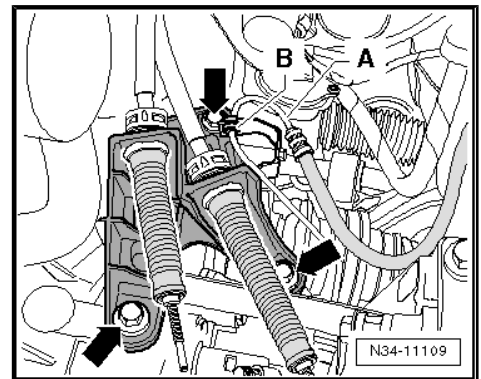
Note

The relay lever is secured by a notch on some vehicles. Refer to ⇒ [“1.8 Plastic Relay Lever”, page 77](#) .

- Remove the shift cable lock washer -arrow 2- from the selector lever -A-.
- Remove the shift cable from the pins.
- Remove the nut -arrow 3- and then remove the transmission shift lever -A-.
- Remove the cable bracket from the transmission -arrows-.
- Tie up the shift cable and the selector cable.
- Remove the bracket -B- from the transmission and pull it off the hose/line assembly -A-.



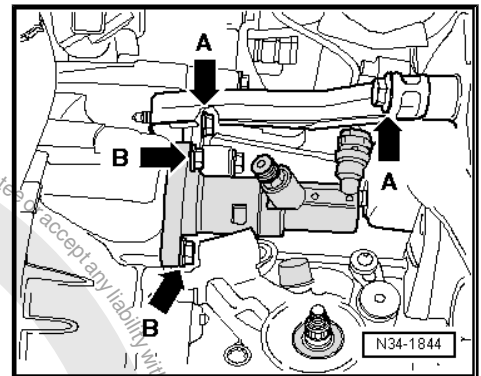
- Remove the transmission support -arrows A-.
- Remove clutch slave cylinder -arrow B- and lay aside, secure with wire, do not open line system.



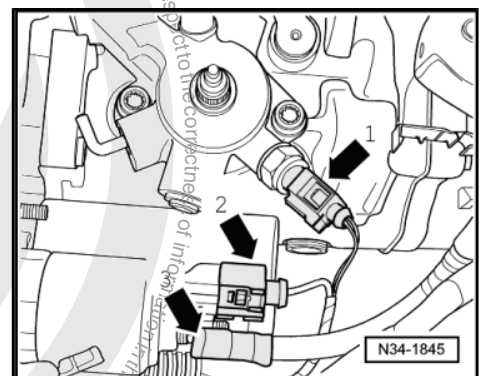
Caution

The clutch slave cylinder could be damaged.

- ◆ *If the clutch slave cylinder is removed from the transmission with pipe/hose line still connected, do not press the clutch pedal.*

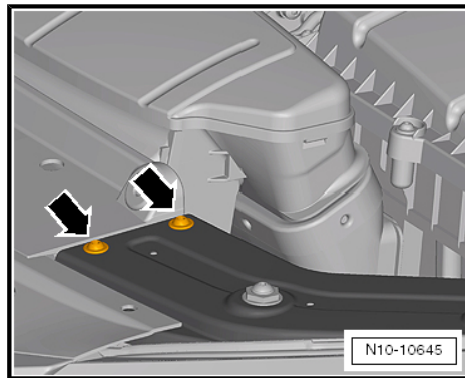


- Disconnect the connector -arrow 1- from the Back-Up Lamp Switch -F4- .
- Remove the connector -arrow 2- and wire -arrow 3- from the starter.
- Disconnect the ground cable from the upper engine/transmission bolt.
- Remove the upper bolt from the starter.
- Remove the upper engine/transmission bolts.
- Remove the plenum chamber cover. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Plenum Chamber Cover; Plenum Chamber Cover, Removing and Installing .

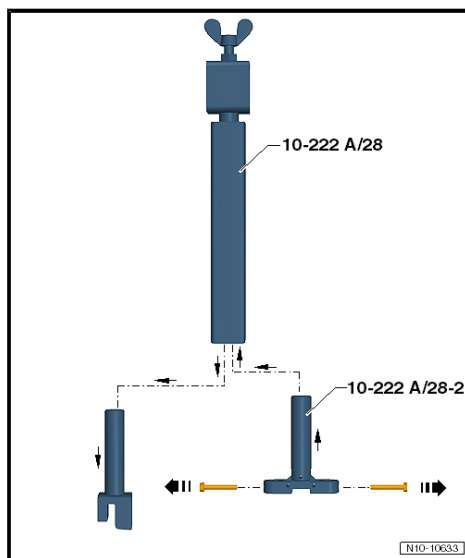




- Remove the bolts -arrows- for the left and right lock carrier retaining brackets.



- Remove the lower mounts on the Engine Support Bridge - Engine Support 28 - 10-222A/28- and replace them with the Engine Support Bridge - Engine Support 28-2 - 10-222A/28-2- .
- Remove the bolts -arrows- for securing the engine support bridge on the lock carrier from the Engine Support Bridge - Engine Support 28-2 - 10-222A/28-2- .
- Use the bolts in the Engine Support Bridge - Engine Support 28-2 - 10-222A/28-2- for attaching the Engine Support Bridge - Engine Support 28 - 10-222A/28- . Not the bolts for the retaining bracket.



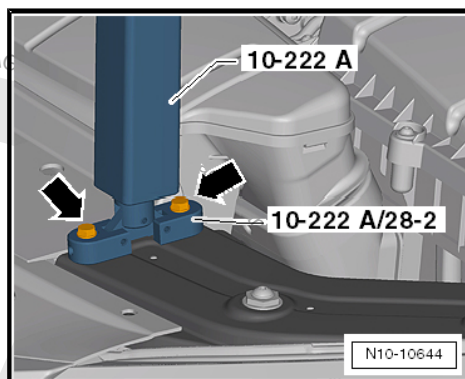
- Install the Engine Support Bridge - Engine Support 28 - 10-222A/28- and tighten the bolts to 8 Nm -arrows-.



Caution

A second technician is required to mount the Engine Support Bridge - 10-222A- on the vehicle to prevent the Engine Support Bridge from tipping.

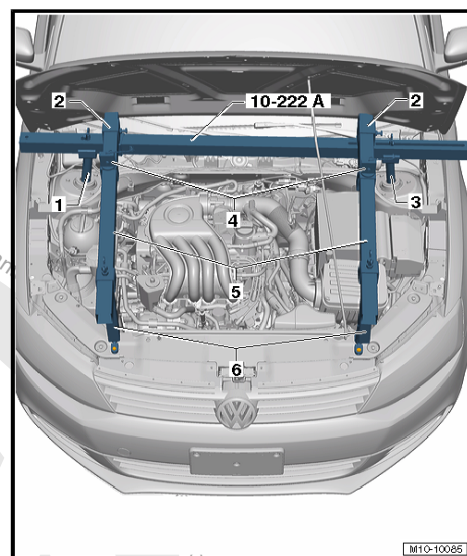
- If there are hose and cable connections located near the engine lifting eyes for the Engine Support Bridge - 10-222A- , these must now be removed.





Mount the engine support bridge on the engine/transmission sub-assembly as follows:

- 1 - Engine Support Bridge - Engine Support 31 - Adapter 2 - 10-222A/31-2-
 - 2 - Engine Support - Basic Set - Moveable Joint - T40091/3-
 - 3 - Engine Support Bridge - Engine Support 31 - Adapter 1 - 10-222A/31-1-
 - 4 - Engine Support - Supplement Kit - Movable Joint - T40093/4-
 - 5 - Engine Support - Basic Set - Square Pipe - T40091/1-
 - 6 - Engine Support Bridge - Engine Support 28 - 10-222A/28- with Engine Support Bridge - Engine Support 28-2 - 10-222A/28-2-
- First slide the Moveable Joints -2- onto the Square Pipe from the Engine Support Bridge - 10-222A- .
 - The bolts for the Movable Joints - T40091/3- -2- on the Engine Support Bridge - 10-222A- face the direction of travel.
 - Mount the Engine Support Bridge - 10-222A- on the suspension strut towers and have a second technician hold it to prevent it from tipping.
 - Push the Engine Support - Basic Set - Square Pipe - T40091/1- - 5- from the front left and right through the Engine Support Bridge - Engine Support 28 - 10-222A/28- - 6- and place on each side of the Engine Support - Supplement Kit - Movable Joint - T40093/4- - 4-.





- Slide the Engine Support - Basic Set - Rail with Holes - T40091/2- - 8- with the Engine Support - Supplement Kit Mount - T40093/5- -7- in the Engine Support - Supplement Kit - Moveable Joint - T40093/4- - 4-.

- 1 - Engine Support Bridge - Engine Support 31 - Adapter 2 - 10-222A/31-2-
- 2 - Engine Support - Basic Set - Moveable Joint - T40091/3-
- 3 - Engine Support Bridge - Engine Support 31 - Adapter 1 - 10-222A/31-1-
- 4 - Engine Support - Supplement Kit - Movable Joint - T40093/4-
- 5 - Engine Support - Basic Set - Square Pipe - T40091/1-
- 6 - Engine Support Bridge - Engine Support 28 - 10-222A/28- with Engine Support Bridge - Engine Support 28-2 - 10-222A/28-2-
- 7 - Engine Support - Supplement Kit - Mount 5 - T40093/5-
- 8 - Engine Support - Basic Set - Rail with Holes - T40091/2-
- 9 - Engine Support Bridge - Spindle - 10-222A/11-

- Install the locking pins into the Engine Support - Basic Set - Rail with Holes - T40091/2- -8- and secure it with the cotter pins.

- Tighten all the threaded connections on the Engine Support Bridge hand-tight. While doing so, adjust the height of the Engine Support Bridge parallel over the Engine Support Bridge - Engine Support 28 - 10-222A/28- .

- Lightly tension the engine/transmission assembly using the Engine Support Bridge - Spindle - 10-222A/11- - 9- do not lift.

- Loosen the left front wheel bolts.

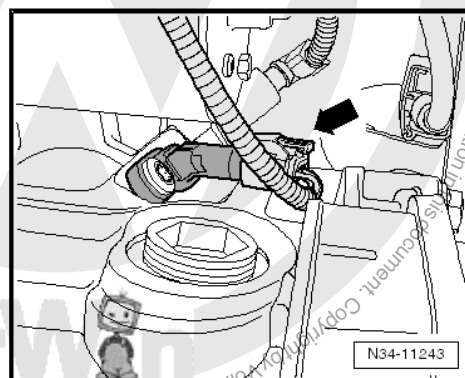
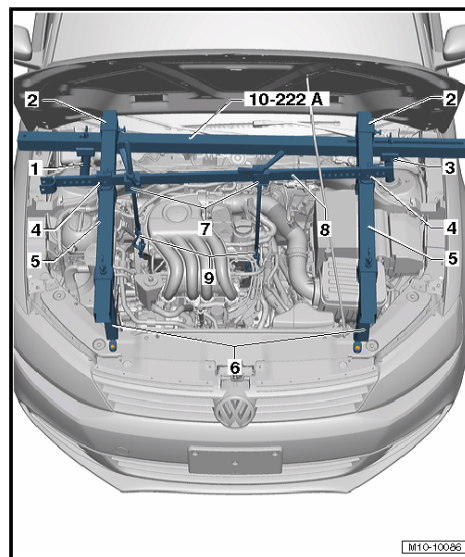
- Raise the vehicle and remove the left front wheel.

- Remove the noise insulation. Refer to ➤ Body Exterior; Rep. Gr. 50 ; Noise Insulation .

- Remove the left front wheel housing liner. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Front Wheel Housing Liner, Removing and Installing .

For vehicles with the Start/Stop System

- Disconnect the connector -arrow- from the Transmission Neutral Position Sensor - G701- .





Vehicles with Hydraulic Power Steering

- Remove the brackets and the power steering lines from the transmission -arrows-.

Continuation for all Vehicles

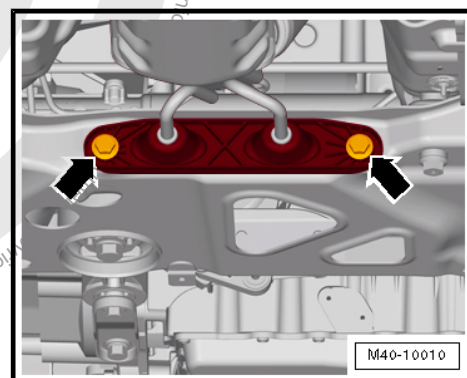
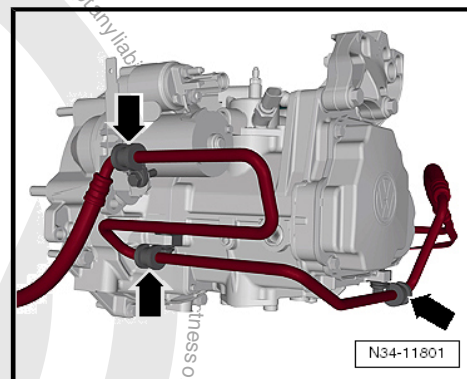
- Separate the exhaust system at the double clamp and remove the front exhaust pipe bracket from the subframe -arrows-. Refer to ➤ Rep. Gr. 26 ; Exhaust System .



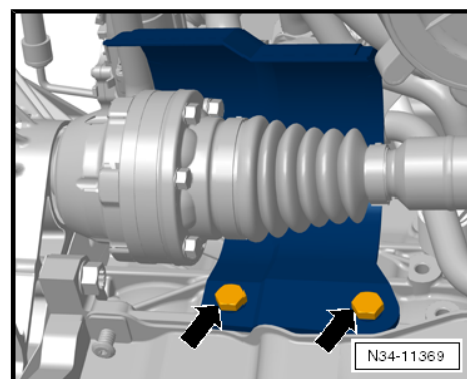
Caution

Risk of damaging the decoupling element.

- ◆ Do not bend the decoupling element more than 10°.
- ◆ Do not load the decoupling element.
- ◆ Do not damage the wire mesh on the decoupling element.

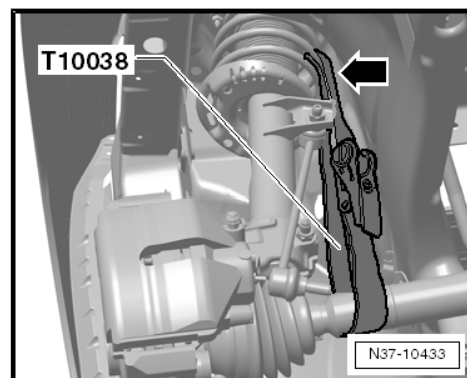


- Tie up the front exhaust pipe.
- If equipped, remove the heat shield above the right driveshaft -arrows-.
- Remove the left and right drive axles from the transmission flange shafts. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Removing and Installing .



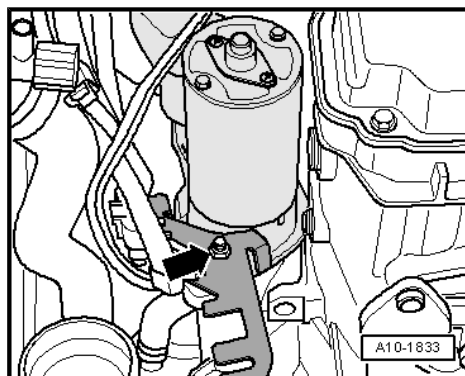
- Tie up the left and right driveshafts with a cable tie or with Tensioning Strap - T10038- .

Do not damage the surface of the shafts.





- If equipped remove the wire bracket from the lower starter bolt -arrow-.
- Remove the lower bolt from the starter and then remove the starter. Refer to ➔ Electrical Equipment; Rep. Gr. 27 ; Starter; Starter, Removing and Installing .

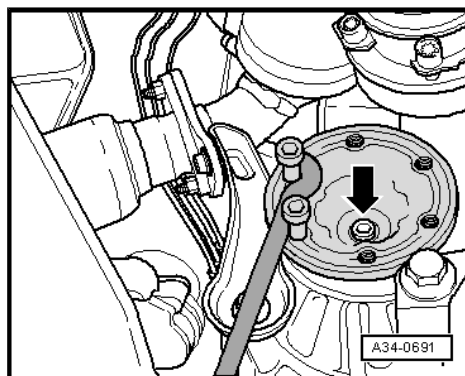


- Install two bolts in the flange and counterhold the flange shaft with the pry lever to remove the right flange shaft bolt -arrow-.



Note

Check the seal for leaks before removing the flange shaft. If the seal has leaks, replace it when installing. Refer to ➔ "1.5 Seal and Sleeve, One-Piece Right Flange Shaft Seal and Sleeve, Replacing", page 280 .

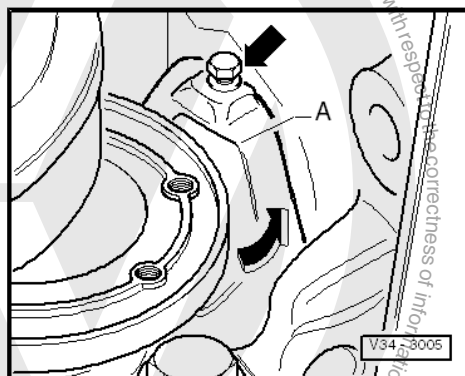
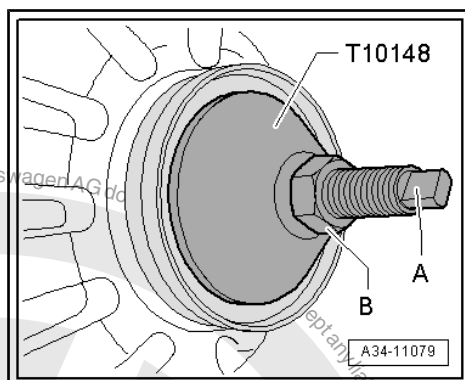


- Remove the flange shaft.
- Attach the spindle -A- from the Seal Installer - Driver Set - 3066- into the threaded piece on the differential.
- Insert the Seal Installer - One-Piece Seal - T10148- and secure with the nut -B-.



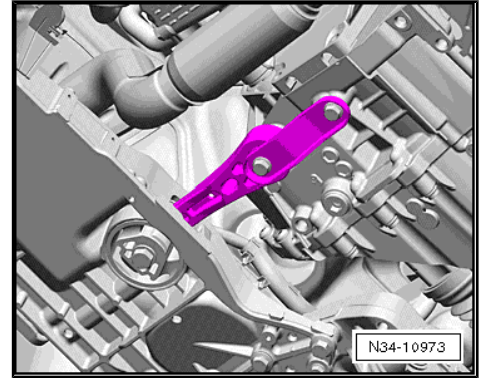
Note

- ♦ The Seal Installer - One-Piece Seal - T10148- should protect the right seal and the transmission from dirt.
- ♦ A M8 x 105 mm bolt may be installed by hand into the differential threaded piece instead of a spindle -A-.
- If installed, remove small cover plate -A- for flywheel behind right flange shaft -arrows-.

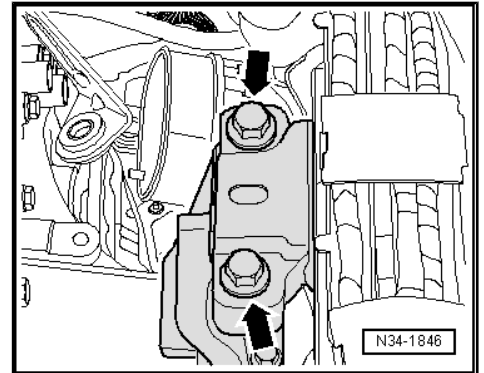




- Remove the pendulum support.



- Remove the left assembly mounting hex bolts -arrows- from the transmission mounting.
- Bring engine/transmission assembly into angled position by lowering it via the spindles on the Engine Support Bridge - 10-222A- .

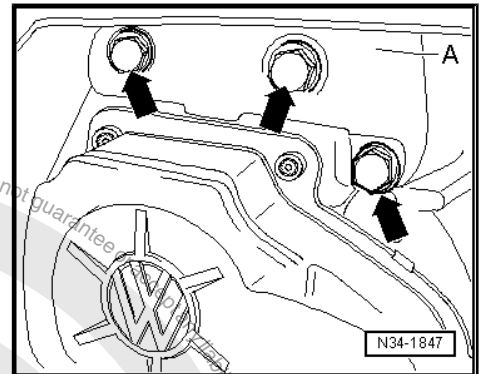


- The bolts -arrows- for the transmission bracket -A- must be accessible.

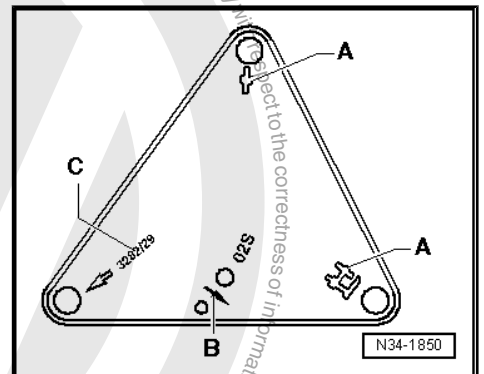
- Remove the transmission bracket -A- -arrows-.

Align the Transmission Support - 3282- with the Transmission Support - Mounting Plate 39 - 3282/39- in order to remove the "0A4" transmission.

- Insert the Transmission Support - 3282- into the Engine and Gearbox Jack - VAS6931-
- Align the arms of the Transmission Support so that they match up with the holes in the Adjustment Plate .

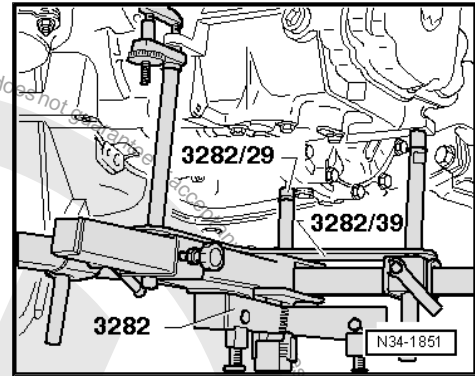


- Install the Mounting Elements -A and C-, on the Adjusting Plate , as illustrated.
- Position the Engine and Transmission Jack under the vehicle. The arrow symbol -B- on the Adjusting Plate points in the direction of travel.

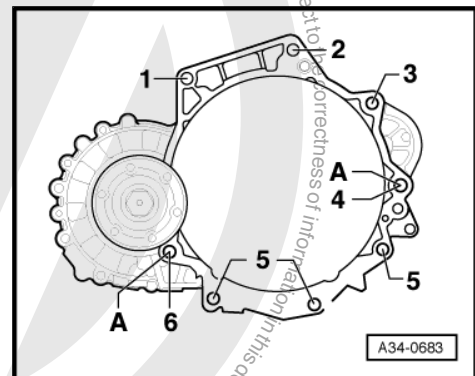




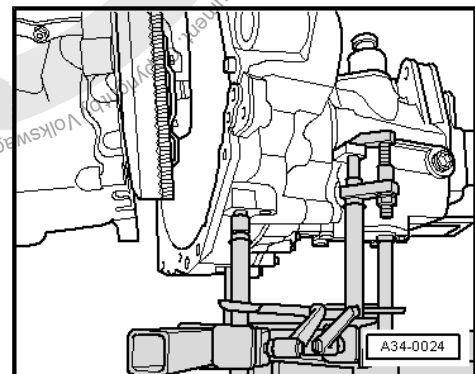
- Align the Adjusting Plate so that it is parallel to the transmission and secure the safety support to the transmission.
- Install the Transmission Support - Pins 29 - 3282/29- into the rear hole for the pendulum support bolt on the transmission.
- Support the transmission by lifting it from below using the Engine and Gearbox Jack - VAS6931- .



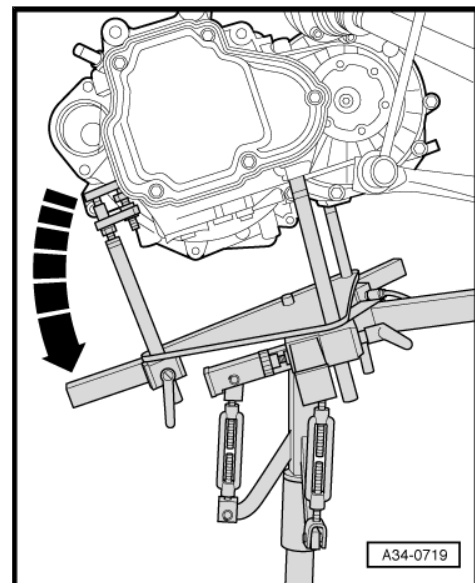
- Remove remaining transmission to engine connecting bolts -5 and 6-.



- Remove the transmission from the alignment bushings and carefully move it toward the subframe.

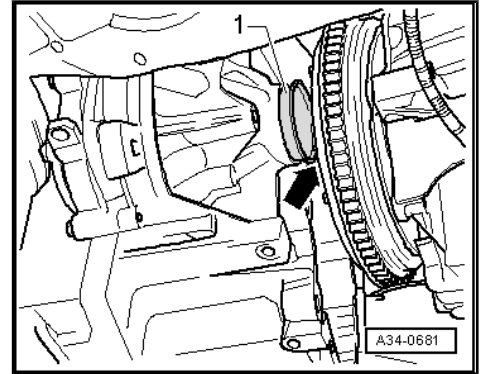


- Tip the transmission over the adjusting spindle for the Transmission Support - 3282- in the direction of the -arrow-.
- Carefully push the engine forward slightly with a second technician.

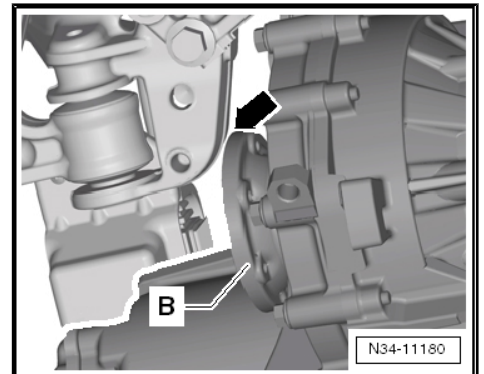




- Carefully lower the transmission with the Engine and Gearbox Jack - VAS6931- , while making sure that the right flange shaft seal -1- is guided through without any damage to the pressure plate -arrow-.



- Guide the left flange shaft -B- past the subframe -arrow- as shown. Move the Engine and Gearbox Jack with the transmission to the front.
- When lowering, change the transmission position using the spindles on the Transmission Support - 3282- .



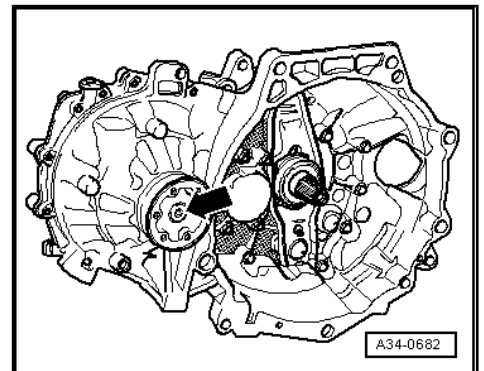
Note

Pay attention to all of the lines when lowering the transmission.

- Reinsert the right flange shaft if necessary and tighten the bolt -arrow- to 25 Nm.

Transmission, transporting. Refer to

⇒ ["5 Transmission, Transporting", page 175](#) .



3.2 Transmission, Installing, Jetta MY 2011 with 2.0L 85 kW Engine

⇒ ["3.2.1 Tightening Specifications", page 119](#)



Note

Refer to "Transmission, Removing" to get a list of the special tools needed. Refer to

⇒ ["3.1 Transmission, Removing, Jetta MY 2011, 2.0L 85 kW", page 102](#) .

Pay attention to the following list for the subject - "Transmission Fluid, Checking and Filling"

"Transmission Fluid, Checking and Filling"				
		»No«	»Yes«	»Yes«
Transmission	Original Part	X		
	no oil outlet	X		



"Transmission Fluid, Checking and Filling"				
	Was completely disassembled		X before installation -item 3- ⇒ <u>Item 3 (page 203)</u> transmission fluid capacity. Refer to ⇒ <u>"2.3 Codes, Transmission Allocation and Capacities", page 3</u>	
	Was partially disassembled • (the transmission housing and the clutch housing were not separated from each other)			X after installation. Refer to ⇒ <u>"6 Transmission Fluid, Checking and Filling", page 176</u> .

- Clean any locking compound residue from all threaded holes using a tap.
- Always replace self-locking bolts and nuts.
- Make sure the alignment sleeves for centering the engine/transmission are installed inside the cylinder block. Install them if necessary.

If the alignment sleeves are missing, it will be difficult to shift, there will be clutch problems and the transmission may make noises (loose rattling).

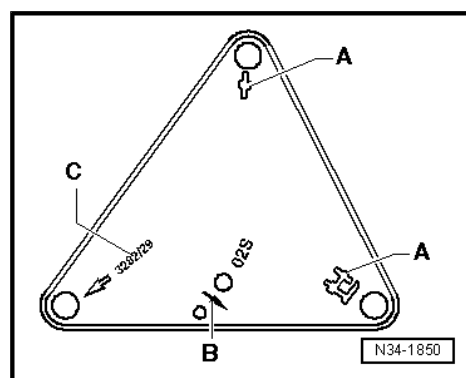
- Clean the driveshaft splines and grease lightly with Grease For Clutch Disc Shaft Splines - G 000 100- .

It must be possible to slide the clutch plate back and forth on the input shaft.

- Check the clutch release bearing for wear and replace if necessary.

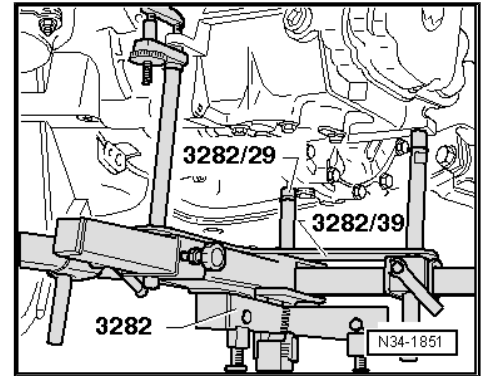
Align the Transmission Support - 3282- with the Transmission Support - Mounting Plate 39 - 3282/39- in order to install the "0A4" transmission.

- Align the arms of the Transmission Support so that they match up with the holes in the Adjustment Plate .
- Install the Mounting Elements -A and C- (Transmission Support - Pins 29 - 3282/29-) on the adjusting plate as illustrated.
- Place the transmission on the Engine and Gearbox Jack .
- Align the Adjustment Plate so that it is parallel to the transmission.





- Install the Transmission Support - Mounting Plate 29 - 3282/29- into the rear hole in the transmission for the pendulum support bolt.
- Position the Engine and Gearbox Jack under the vehicle. The -arrow symbol B- on the adjusting plate points in direction of travel.

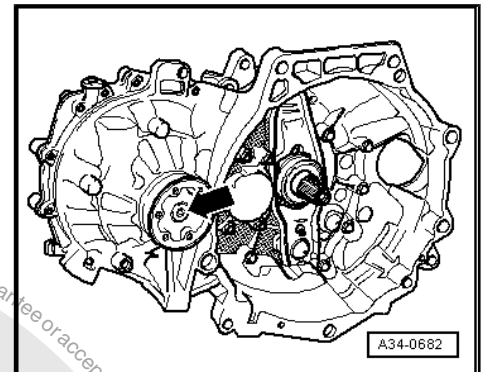


- Remove from a new transmission or replacement transmission right flange shaft -arrow-.



Note

Check the seal for leaks before removing the flange shaft. If the seal has leaks, replace it when installing. Refer to
⇒ "1.5 Seal and Sleeve, One-Piece Right Flange Shaft Seal and Sleeve, Replacing", page 280.

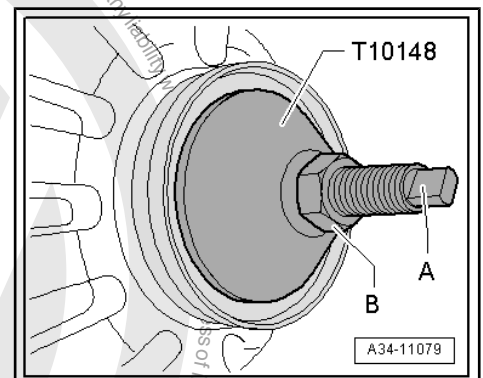


- Attach the spindle -A- for the Seal Installer - Driver Set - 3066- into the threaded piece on the differential.
- Insert the Seal Installer - One-Piece Seal - T10148- and secure with the nut -B-.

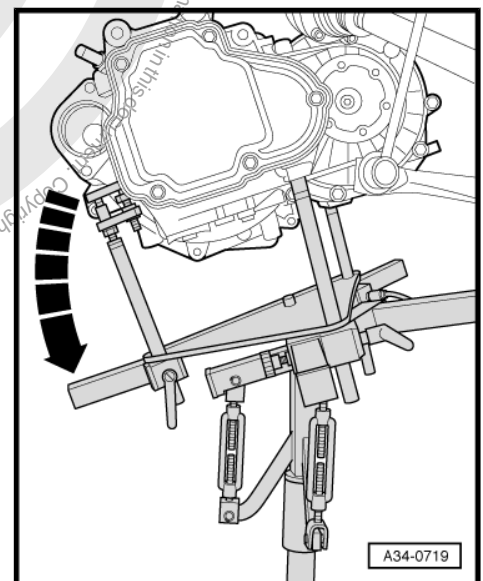


Note

- ♦ The Seal Installer - One-Piece Seal - T10148- should protect the right seal and the transmission from dirt.
- ♦ A M8 x 105 mm bolt may be installed by hand into the differential threaded piece instead of a spindle -A-.

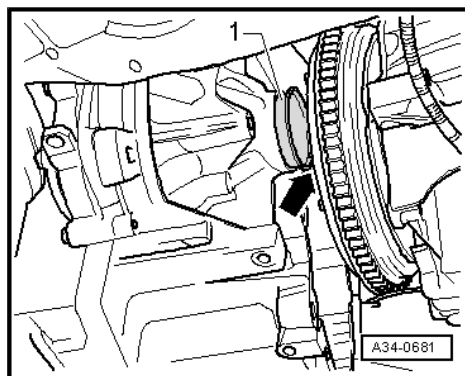


- Tip the transmission over the adjusting spindle for the Transmission Support - 3282- in the direction of the -arrow-.
- Carefully lift the transmission. If equipped pay attention to the power steering line while doing so.
- Carefully push the engine forward slightly with a second technician.

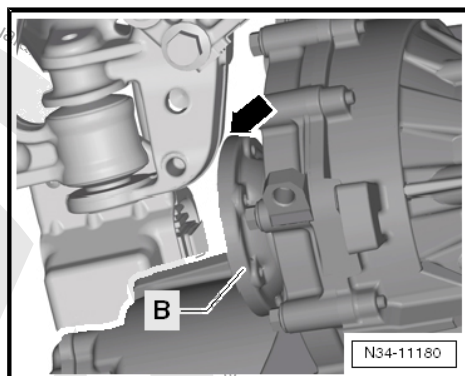




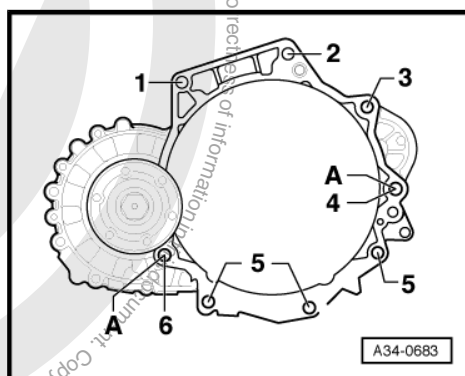
- Carefully lift the transmission with the Engine and Gearbox Jack - VAS6931- , while making sure that the seal -1- is guided through without any damage to the pressure plate -arrow-.



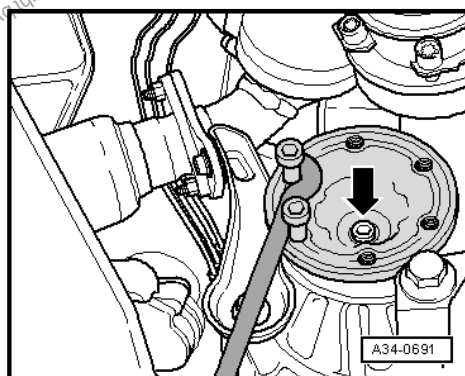
- Guide the left flange shaft -B- past the subframe bracket -arrow- as illustrated.
- Align the transmission with the engine and install it.



- Install the lower bolts -5 and 6- for the engine on the transmission and tighten them to the tightening specification. Refer to ➤ ["3.2.1 Tightening Specifications", page 119](#) .

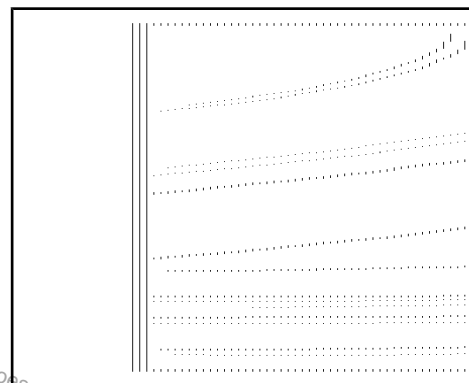


- Reinsert the right flange shaft and tighten the bolt -arrow- to the tightening specification -item 12 ➤ [Item 12 \(page 287\)](#) .
- After the transmission is attached to the engine, remove the Engine and Gearbox Jack from the transmission.

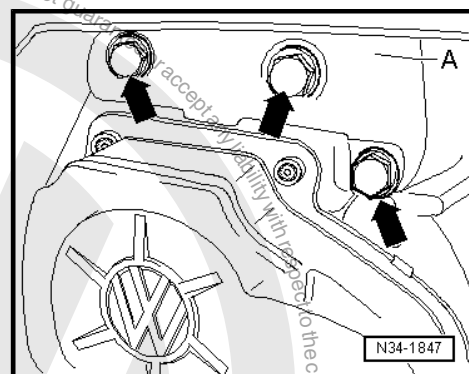




- Install small cover plate, if equipped, behind right flange shaft -A- -arrows-.
- Install the upper engine/transmission connecting bolts and tighten to the tightening specification. Refer to ⇒ [“3.2.1 Tightening Specifications”, page 119](#) .



- Attach the bracket -A- with the new bolts to the transmission -arrows- and tighten them to the tightening specification. Refer to ⇒ [“4.1 Overview - Subframe Mount”, page 173](#) .

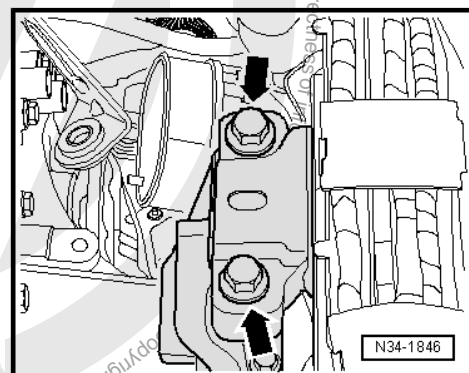


- Align the engine/transmission via the spindles from the Engine Support Bridge 10-222A- in the installation position.

Caution

There is a risk of damaging the threads in transmission bracket by inserting bolts at an angle.

◆ *Before installing bolts -arrows-, transmission bracket and transmission mount support arm must be absolutely parallel to each other. If necessary, lift the back of the transmission using the Engine and Gearbox Jack .*



i Note

Install the engine/transmission mount free of tension. Refer to ⇒ Rep. Gr. 10 ; Engine, Removing and Installing .

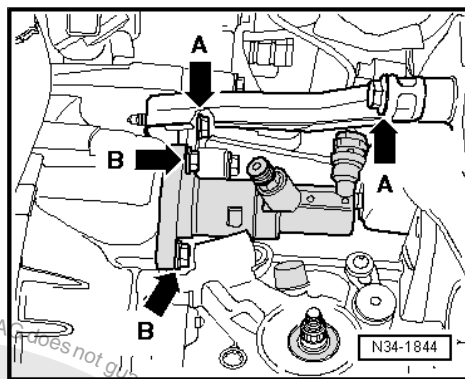
- Install new bolts -arrows- of left assembly mounting into transmission mount and tighten to tightening specification. Refer to ⇒ [“4.1 Overview - Subframe Mount”, page 173](#) .

WARNING

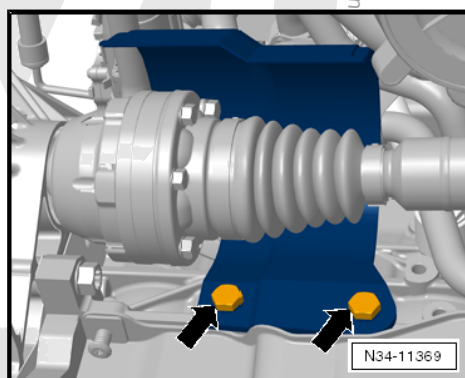
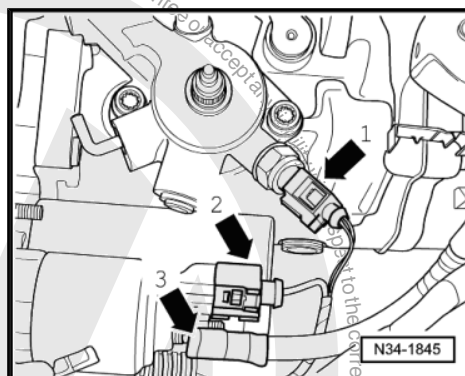
Only remove Engine Support Bridge - 10-222A- when the left and right subframe mount bolts are tightened to the tightening specification.



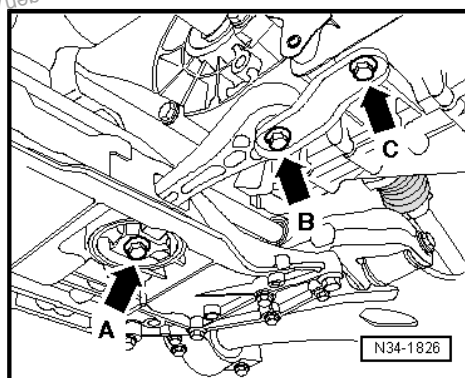
- Install the clutch slave cylinder and tighten the bolts to the specification -item 15- ➔ [Item 15 \(page 39\)](#) , -arrows B-.
- Attach the transmission support -arrows A- and tighten it to the tightening specification. Refer to ➔ ["4.1 Overview - Subframe Mount", page 173](#) .



- Connect the connector -1- to the Back-Up Lamp Switch - F4- .
- Install the starter, connect the connector -arrow 2- and attach the wire -arrow 3-. Refer to ➔ Electrical Equipment; Rep. Gr. 27 ; Starter; Starter, Removing and Installing .
- Attach the ground cable to the upper engine/transmission connecting bolt.
- Attach the drive axles to the transmission. Refer to ➔ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Removing and Installing .
- If equipped install the drive axle heat shield -arrows-. Refer to ➔ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Overview and Servicing; Drive Axle Heat Shield .



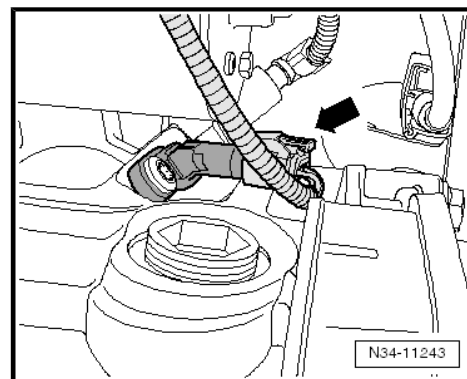
- Install pendulum support with new bolts -arrows A, B and C-. Refer to ➔ Suspension, Wheels, Steering; Rep. Gr. 40 ; Subframe; Overview - Subframe .
- Assemble the exhaust system and then attach the exhaust system bracket it to the subframe. Refer to ➔ Rep. Gr. 26 ; Exhaust System .





For vehicles with the Start/Stop System

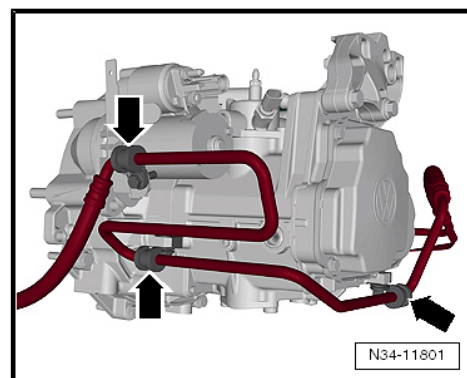
- Attach the connector -arrow- to the Transmission Neutral Position Sensor - G701- .



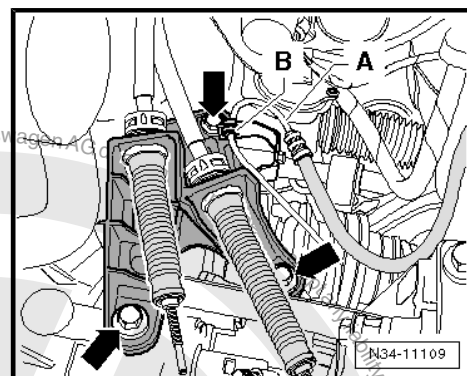
Vehicles with Hydraulic Power Steering

- Attach the power steering line clamps -arrows- to the transmission. Refer to ⇒ Brake System; Rep. Gr. 47 ; Hydraulic System .

Continuation for all Vehicles

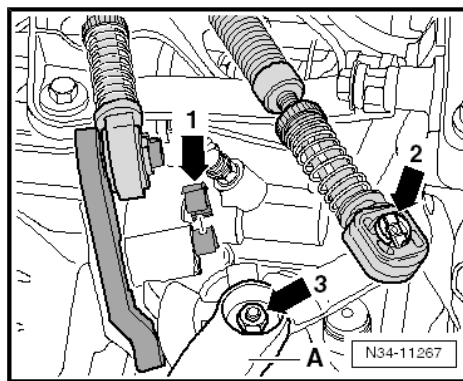


- Attach the bracket -B- to the transmission.
- Press the hose/line assembly -A- into the bracket -B- on the transmission.
- Attach the cable mounting bracket to the transmission and tighten the bolts -arrows- to the tightening specification -item 6- ⇒ [Item 6 \(page 74\)](#) .





- Install the gearshift lever -A-.
- Tighten the nut -arrow 3- to the tightening specification -item 18- ➔ [Item 18 \(page 76\)](#) .
- Grease the relay lever before installation, ➔ ["1.8 Plastic Relay Lever", page 77](#) .
- Allocate the grease for gearshift mechanism. Refer to the Parts Catalog.
- Insert the relay lever together with the cable retainer and secure them with the clip -arrow 1-.
- Coat the pin on the gearshift lever with a small amount of grease -A-.
- Install the shift cable on the gearshift lever -A- and secure it with new lock washer -arrow 2-.
- The clip -arrow 1- secures the relay lever.
- Make sure the clips locks securely.



Note

The relay lever is secured by a notch on some vehicles. Refer to ➔ ["1.8 Plastic Relay Lever", page 77](#) .

- Connect the selector cable to the cable retainer.
- Adjust the gearshift mechanism. Refer to ➔ ["1.11 Selector Mechanism, Adjusting", page 85](#) .
- Install the plenum chamber cover. Refer to ➔ Body Exterior; Rep. Gr. 50 ; Plenum Chamber Cover; Plenum Chamber Cover, Removing and Installing .



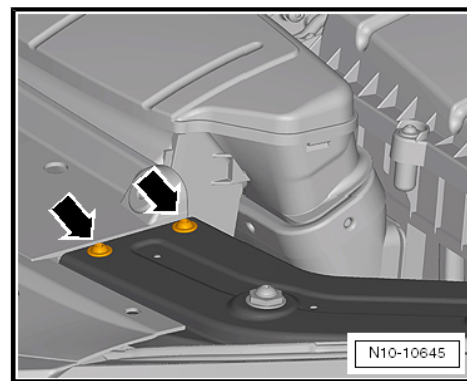
- Install the bolts -arrows- for the left and right lock carrier retaining brackets to the tightening specification. Refer to ➤ Body Exterior; Rep. Gr. 50 ; Lock Carrier; Lock Carrier - Attachments .



Note

If when removing the flange shaft, the transmission fluid leaks out, drain and fill the transmission fluid for the installed transmission and flange shaft. Refer to

➤ "6 Transmission Fluid, Checking and Filling", page 176 .

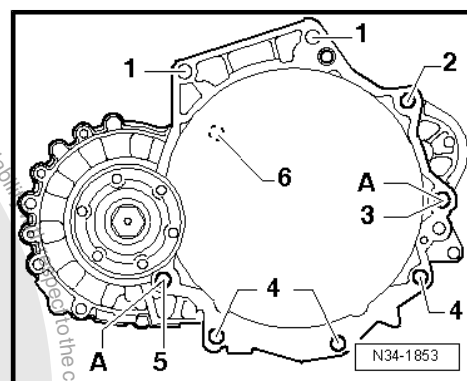


- Install the battery tray and the battery. Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .
- Install the air filter. Refer to ➤ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .
- Connect the battery and follow the procedure regarding what to do after connecting a battery. Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Install the left front wheel housing liner. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Front Wheel Housing Liner, Removing and Installing .
- Install the noise insulation. Refer to ➤ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Install the wheel. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 44 ; Wheel Installation Tightening Specifications .

3.2.1 Tightening Specifications

Transmission to engine

Item	Bolt	Quantity	Nm
1	M 12 x 65	2	80
2	M 12 x 150 ♦ Also starter to transmission	1	80
3	M 12 x 165 ♦ Also starter to transmission	1	80
4	M10 x 50	3	40
5	M 12 x 85	1	80
6	M6 x 8 ♦ Small flywheel cover plate	1	10



-A- alignment sleeves for centering

Component	Nm
Bracket for lower starter plug wires	20
Ground cable to engine/transmission bolt	20



3.3 Transmission, Removing, Jetta MY 2011, 2.5L 125 kW

Special tools and workshop equipment required

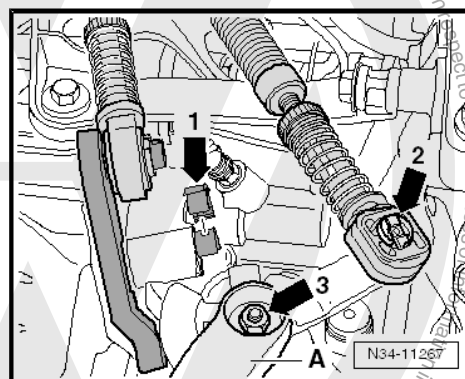
- ◆ Engine Support Bridge - 10-222A-
- ◆ Transmission Support - 3282-
- ◆ Support Elements for transmission (determine when mounting the Mounting Plate on the Transmission Support)
- ◆ Engine and Gearbox Jack - VAS6931-
- ◆ Tensioning Strap - T10038-
- ◆ Engine Support - Basic Set - T40091-
- ◆ Engine Support - Supplement Kit - T40093A-
- ◆ Spindle from the Seal Installer - Driver Set - 3066- or bolt M8 x 105
- ◆ Transmission Support - Pins 29 - 3282/29-
- ◆ Transmission Support - Mounting Plate 39 - 3282/39-
- ◆ Seal Installer - One-Piece Seal - T10148-
- ◆ Grease for Clutch Disc Shaft Splines - G 000 100-
- ◆ Allocate the grease for gearshift mechanism. Refer to the Parts Catalog.
- Determine whether a coded radio is installed. If so, obtain the anti-theft code.
- Disconnect the battery ground cable with the ignition switched off. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Remove the engine cover and air filter. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .
- Remove the battery and the battery tray. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .
- Remove the cable retainer from the selector cable. Refer to ⇒ ["1.8 Plastic Relay Lever", page 77](#) .
- Remove the clip -arrow 1- and then remove the relay lever and the cable retainer.



Note

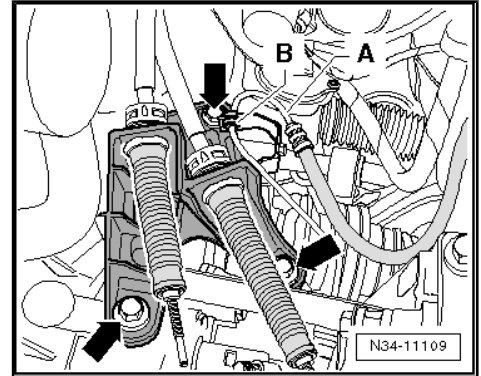
The relay lever is secured by a notch on some vehicles. Refer to ⇒ ["1.8 Plastic Relay Lever", page 77](#) .

- Remove the shift cable lock washer -arrow 2- from the selector lever -A-.
- Remove the shift cable from the pins.
- Remove the nut -arrow 3- and then remove the transmission shift lever -A-.





- Remove the cable bracket from the transmission -arrows-.
- Tie up the shift cable and the selector cable.
- Remove the bracket -B- from the transmission and pull it off the hose/line assembly -A-.



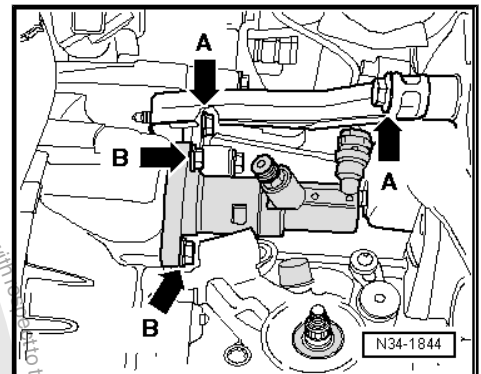
- Remove the transmission support -arrows A-.
- Remove clutch slave cylinder -arrow B- and lay aside, secure with wire, do not open line system.



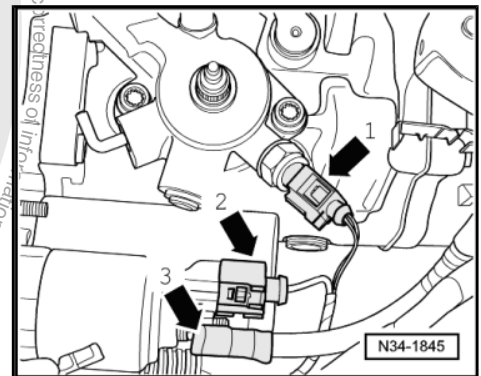
Caution

The clutch slave cylinder could be damaged.

- ◆ *If the clutch slave cylinder is removed from the transmission with pipe/hose line still connected, do not press the clutch pedal.*

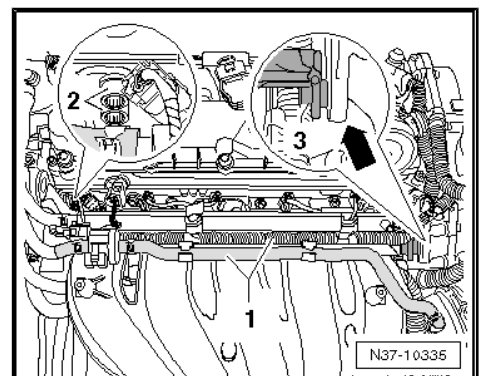


- Disconnect the connector -arrow 1- from the Back-Up Lamp Switch - F4- .
- Remove the connector -arrow 2- and wire -arrow 3- from the starter.
- Disconnect the ground cable from the upper engine/transmission bolt.
- Remove the upper bolt from the starter.
- Remove the upper engine/transmission bolts.
- Remove the plenum chamber cover. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Plenum Chamber Cover; Plenum Chamber Cover, Removing and Installing .



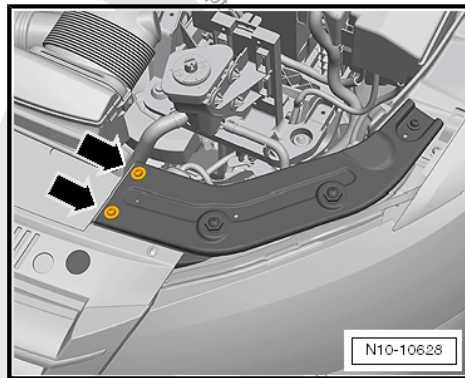
So that engine and transmission can be supported:

- Remove the wires -1- from the transport strap -3-.
- Remove the transport strap -3- from the engine -2- and pull it out of the eye -arrow-.
- Insert a Engine/Gearbox Support Shackle (2 pc.) - 10-222A/12- in »this« eye.

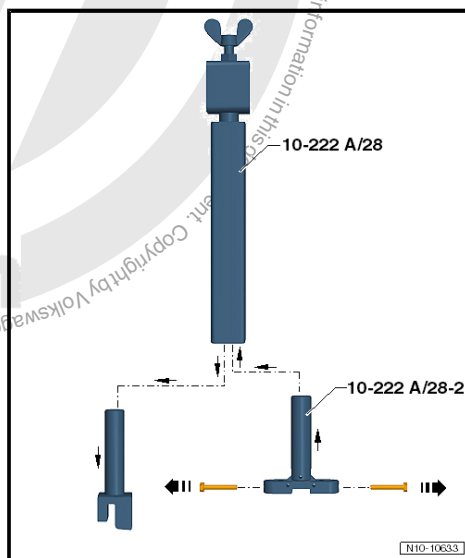




- Remove the bolts -arrows- for the left and right lock carrier retaining brackets.



- Remove the lower mounts on the Engine Support Bridge - Engine Support 28 - 10-222A/28- and replace them with the Engine Support Bridge - Engine Support 28-2 - 10-222A/28-2- .
- Remove the bolts -arrows- for securing the engine support bridge on the lock carrier from the Engine Support Bridge - Engine Support 28-2 - 10-222A/28-2- .
- Use the bolts in the Engine Support Bridge - Engine Support 28-2 - 10-222A/28-2- for attaching the Engine Support Bridge - Engine Support 28 - 10-222A/28- . Not the bolts for the retaining bracket.

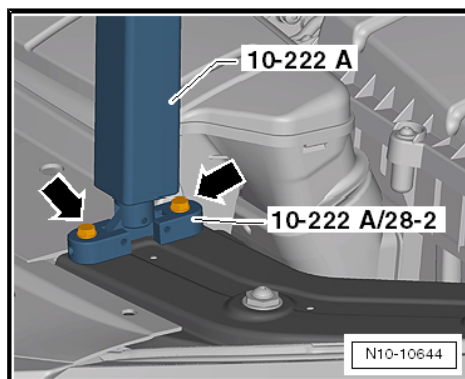


- Install the Engine Support Bridge - Engine Support 28 - 10-222A/28- and tighten the bolts to 8 Nm -arrows-.



Caution

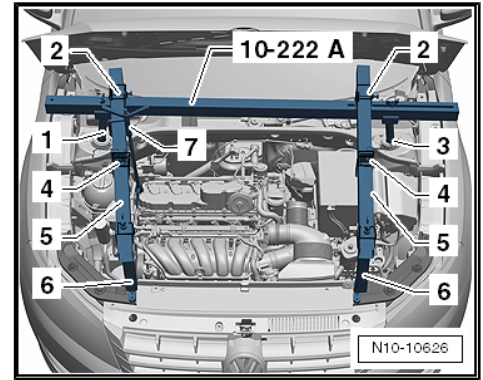
A second technician is required to mount the Engine Support Bridge - 10-222A- on the vehicle to prevent the Engine Support Bridge from tipping.





Mount the engine support bridge on the engine/transmission sub-assembly as follows:

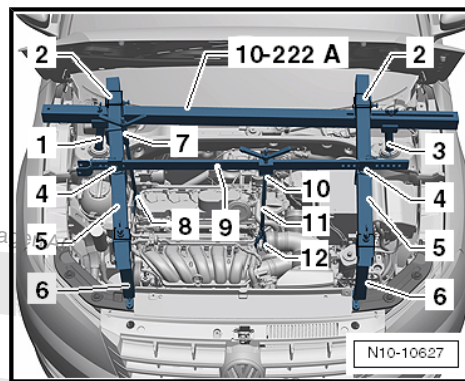
- 1 - Engine Support Bridge - Engine Support 31 - Adapter 2 - 10-222A/31-2-
 - 2 - Engine Support - Basic Set - Moveable Joint - T40091/3-
 - 3 - Engine Support Bridge - Engine Support 31 - Adapter 1 - 10-222A/31-1-
 - 4 - Engine Support - Supplement Kit - Movable Joint - T40093/4-
 - 5 - Engine Support - Basic Set - Square Pipe - T40091/1-
 - 6 - Engine Support Bridge - Engine Support 28 - 10-222A/28- with Engine Support Bridge - Engine Support 28-2 - 10-222A/28-2-
 - 7 - Engine Support - Bracket w/Spindle and Hook - 10-222A/10-
- First slide the Moveable Joints -2- onto the Square Pipe from the Engine Support Bridge - 10-222A- .
 - The bolts for the Movable Joints - T40091/3- -2- on the Engine Support Bridge - 10-222A- face the direction of travel.
 - Mount the Engine Support Bridge - 10-222A- on the suspension strut towers and have a second technician hold it to prevent it from tipping.
 - Push the Engine Support - Basic Set - Square Pipe - T40091/1- -5- from the front left and right through the Engine Support Bridge - Engine Support 28 - 10-222A/28- -6- and place on each side of the Engine Support - Supplement Kit - Movable Joint - T40093/4- -4-.
 - Additionally attach the Engine Support - Bracket w/Spindle and Hook - 10-222A/10- -7- on the right Engine Support - Basic Set - Square Pipe - T40091/1- .





- Push the Engine Support - Basic Set - Rail with Holes - T40091/2- -9- with the Engine Support - Supplement Kit - Mount - T40093/5- -10- in the Engine Support - Supplement Kit - Movable Joint - T40093/4- -4-.

- 1 - Engine Support Bridge - Engine Support 31 - Adapter 2 - 10-222A/31-2-
- 2 - Engine Support - Basic Set - Moveable Joint - T40091/3-
- 3 - Engine Support Bridge - Engine Support 31 - Adapter 1 - 10-222A/31-1-
- 4 - Engine Support - Supplement Kit - Movable Joint - T40093/4-
- 5 - Engine Support - Basic Set - Square Pipe - T40091/1-
- 6 - Engine Support Bridge - Engine Support 28 - 10-222A/28- with Engine Support Bridge - Engine Support 28-2 - 10-222A/28-2-
- 7 - Engine Support - Bracket w/Spindle and Hook - 10-222A/10-
- 8 - Engine Support - Automatic Transmission Hook - 10-222A/7-
- 9 - Engine Support - Basic Set - Rail with Holes - T40091/2-
- 10 - Engine Support - Supplement Kit - Mount 5 - T40093/5-
- 11 - Engine Support Bridge - Spindle - 10-222A/11-
- 12 - Engine/Gearbox Support Shackle (2 pc.) - 10-222A/12-



- Install the locking pins into the Engine Support - Basic Set - Rail with Holes - T40091/2- -9- and secure it with the cotter pins.
- Tighten all the threaded connections on the Engine Support Bridge hand-tight. While doing so, adjust the height of the Engine Support Bridge parallel over the Engine Support Bridge - Engine Support 28 - 10-222A/28- .
- Extend the right Engine Support - Bracket w/Spindle and Hook - 10-222A/10- -7- with the Engine Support - Automatic Transmission Hook - 10-222A/7- -8-.

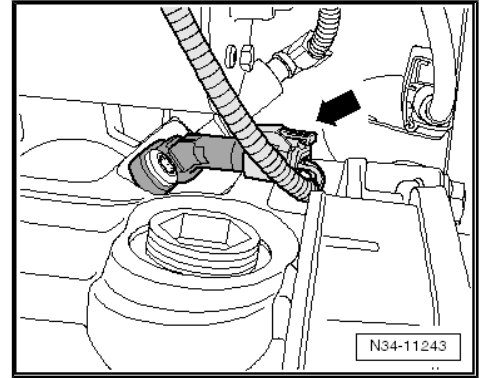
The hook on the Engine Support - Automatic Transmission Hook - 10-222A/7- points downward and will be engaged on cylinder block later.

- Engage the left Engine Support Bridge - Spindle - 10-222A/11- -11- in the Engine/Gearbox Support Shackle (2 pc.) - 10-222A/12- -12-.
- Raise the vehicle and remove the left front wheel.
- Remove the noise insulation.
- Remove the left front wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Front Wheel Housing Liner, Removing and Installing .



For vehicles with the Start/Stop System

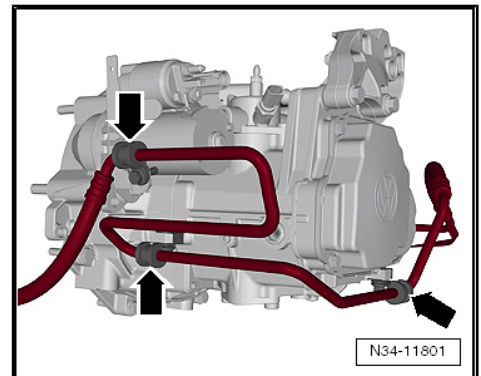
- Disconnect the connector -arrow- from the Transmission Neutral Position Sensor - G701- .



Vehicles with Hydraulic Power Steering

- Remove the brackets and the power steering lines from the transmission -arrows-.

Continuation for All Vehicles



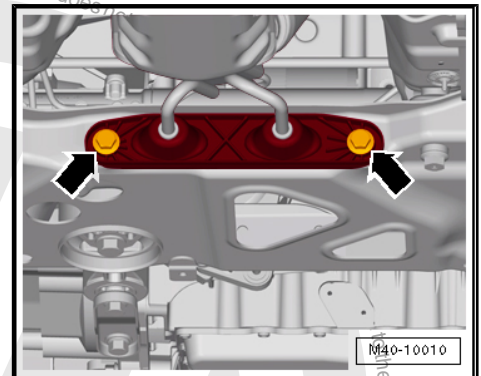
- Separate the exhaust system at the double clamp and remove the front exhaust pipe bracket from the subframe -arrows-. Refer to ➤ Rep. Gr. 26 ; Exhaust System .



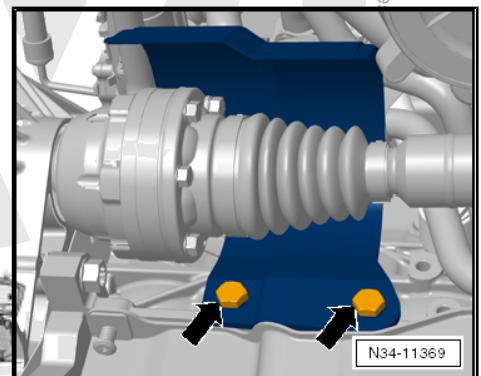
Caution

Risk of damaging the decoupling element.

- ◆ **Do not bend the decoupling element more than 10°.**
- ◆ **Do not load the decoupling element.**
- ◆ **Do not damage the wire mesh on the decoupling element.**



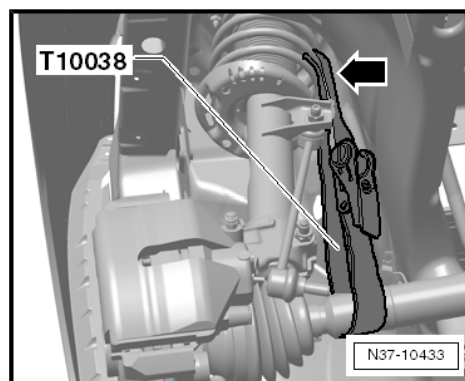
- Tie up the front exhaust pipe.
- If equipped, remove the heat shield above the right driveshaft -arrows-.
- Remove the left and right drive axles from the transmission flange shafts. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Removing and Installing .





- Tie up the left and right driveshafts with a cable tie or with Tensioning Strap - T10038- .

Do not damage the surface of the shafts.

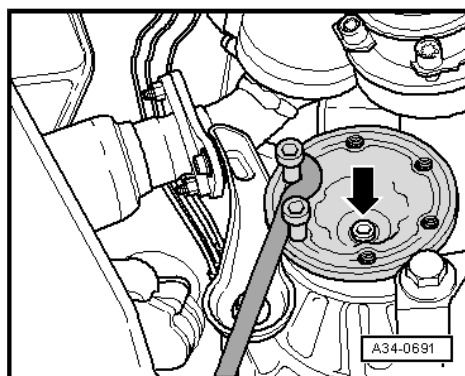


- Install two bolts in the flange and counterhold the flange shaft with the pry lever to remove the right flange shaft bolt -arrow-.



Note

Check the seal for leaks before removing the flange shaft. If the seal has leaks, replace it when installing. Refer to ⇒ "1.5 Seal and Sleeve, One-Piece Right Flange Shaft Seal and Sleeve, Replacing", page 280 .

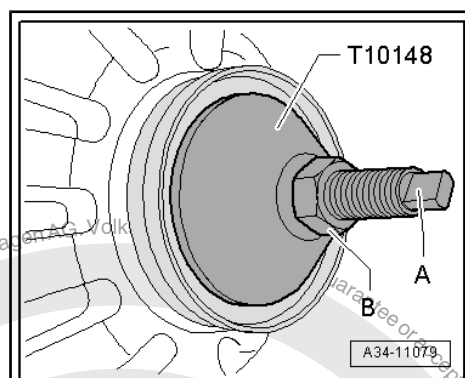


- Remove the flange shaft.
- Attach the spindle -A- from the Seal Installer - Driver Set - 3066- into the threaded piece on the differential.
- Insert the Seal Installer - One-Piece Seal - T10148- and secure with the nut -B-.

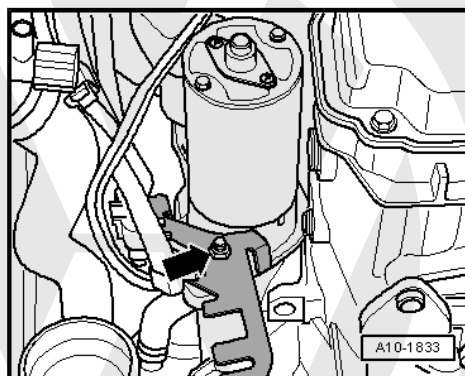


Note

- ♦ The Seal Installer - One-Piece Seal - T10148- should protect the right seal and the transmission from dirt.
- ♦ A M8 x 105 mm bolt may be installed by hand into the differential threaded piece instead of a spindle -A-.

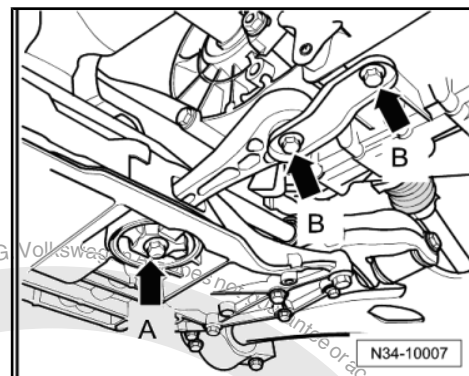


- If equipped remove the wire bracket from the lower starter bolt -arrow-.
- Remove the lower bolt from the starter and then remove the starter. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Starter; Starter, Removing and Installing .

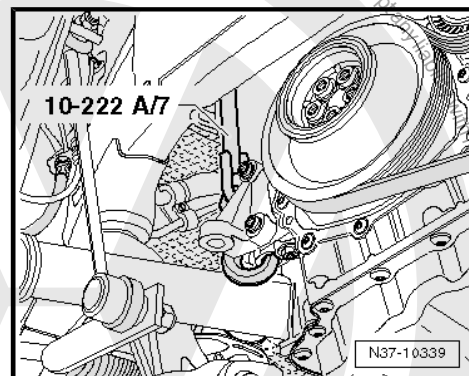




- Remove the pendulum support: First bolt -A- then bolts -B-.

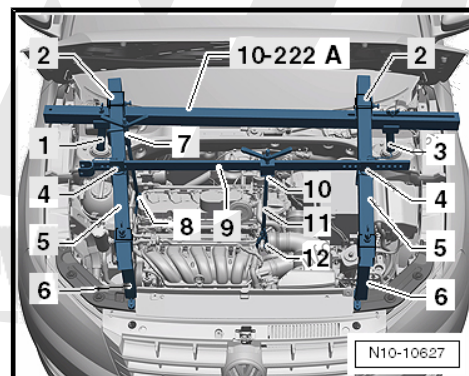


- Engage the Engine Support - Automatic Transmission Hook - 10-222A/7- on the cylinder block.

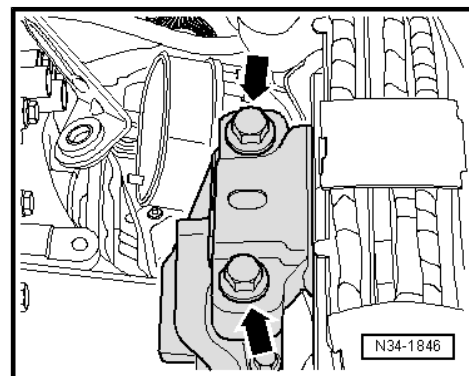


Tension the Engine Support - Bracket w/Spindle and Hook - 10-222A/10- -7- one turn (more is not necessary).

- Support the engine and transmission with the Engine Support Bridge - Spindle - 10-222A/11- -11-. Do not lift.



- Remove the left assembly mounting hex bolts -arrows- from the transmission mounting.
- Bring engine/transmission assembly into angled position by lowering it via the spindles on the Engine Support Bridge - 10-222A- .





- The bolts -arrows- for the transmission bracket -A- must be accessible.



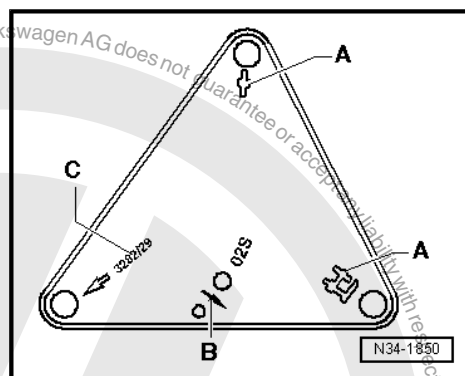
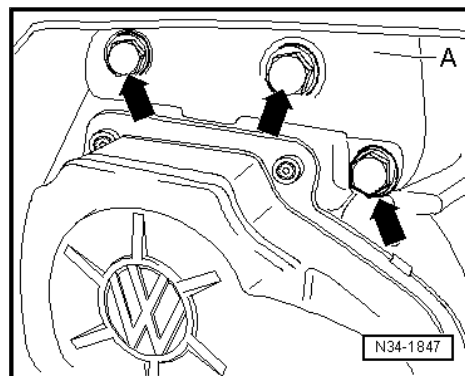
Caution

When lowering the engine/transmission sub-assembly, make sure that no ribbed belt drive components on the longitudinal member are touching.

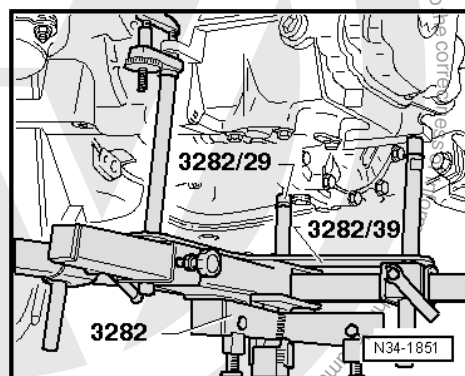
- Remove the transmission bracket -A- -arrows-.

Align the Transmission Support - 3282- with the Transmission Support - Mounting Plate 39 - 3282/39- in order to remove the "0A4" transmission.

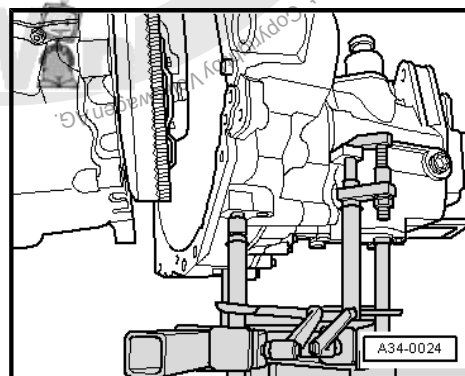
- Insert the Transmission Support - 3282- into the Engine and Gearbox Jack - VAS6931- .
- Align the arms of the Transmission Support so that they match up with the holes in the Adjusting Plate .
- Install the Mounting Elements -A and C- and -C-, on the Adjusting Plate , as illustrated.
- Position the Engine and Transmission Jack under the vehicle. The arrow symbol -B- on the Adjusting Plate points in the direction of travel.



- Align the Adjusting Plate so that it is parallel to the transmission and secure the safety support to the transmission.
- Install the Transmission Support - Pins 29 - 3282/29- into the hole for the pendulum support bolt on the transmission.
- Support the transmission by lifting it from below using the Engine and Gearbox Jack - VAS6931- .
- Remove the lower engine/transmission bolts.

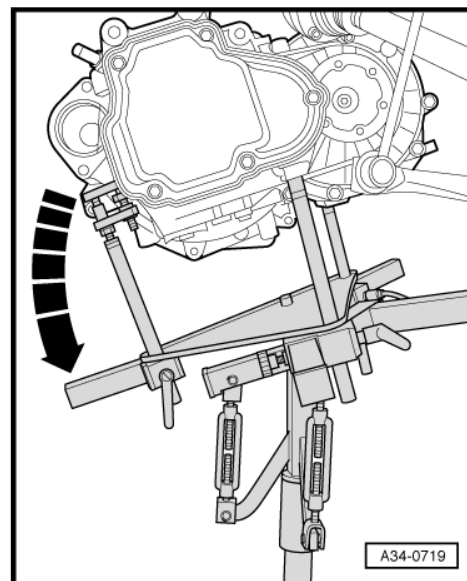


- Remove the transmission from the alignment bushings and carefully move it toward the subframe.

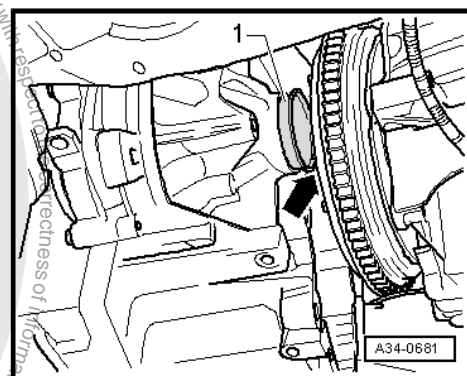




- Tip the transmission over the adjusting spindle for the Transmission Support - 3282- in the direction of the -arrow-.
- Push the engine forward slightly with a second technician.



Carefully lower the transmission with the Engine and Gearbox Jack - VAS6931- , while making sure that the right flange shaft seal -1- is guided through without any damage to the pressure plate -arrow-.

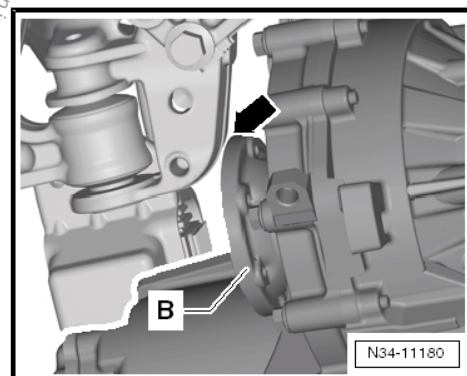


- Guide the left flange shaft -B- past the subframe -arrow- as shown. Move the Engine and Gearbox Jack with the transmission to the front.
- When lowering, change the transmission position using the spindles on the Transmission Support - 3282- .



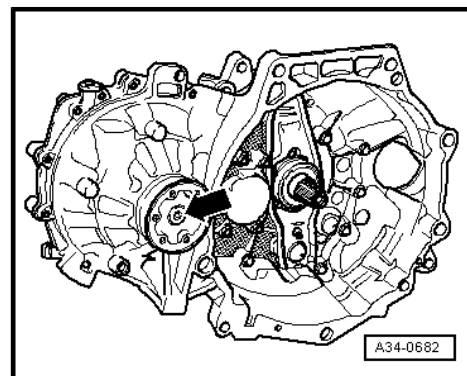
Note

Guide the transmission past the power steering line and past the subframe when lowering it.



- Reinsert the right flange shaft if necessary and tighten the bolt -arrow- to 25 Nm.

Transmission, transporting. Refer to
⇒ ["5 Transmission, Transporting", page 175](#) .





3.4 Transmission, Installing, Jetta MY 2011, 2.5L 125 kW

⇒ [“3.4.1 Tightening Specifications”, page 137](#)



Note

Refer to “Transmission, Removing” to get a list of the special tools needed. Refer to

⇒ [“3.3 Transmission, Removing, Jetta MY 2011, 2.5L 125 kW”, page 120](#).

Pay attention to the following list for the subject - “Transmission Fluid, Checking and Filling”

“Transmission Fluid, Checking and Filling”				
		»No«	»Yes«	»Yes«
Transmission	Original Part	X		
	no oil outlet	X		
	Was completely disassembled		X before installation ⇒ Item 3 (page 203) transmission fluid capacity. Refer to ⇒ “2.3 Codes, Transmission Allocation and Capacities”, page 3	
	Was partially disassembled • (the transmission housing and the clutch housing were not separated from each other)			X after installation. Refer to ⇒ “6 Transmission Fluid, Checking and Filling”, page 176 .

- Clean any locking compound residue from all threaded holes using a tap.
- Always replace self-locking bolts and nuts.
- Make sure the alignment sleeves for centering the engine/transmission are installed inside the cylinder block. Install them if necessary.

If the alignment sleeves are missing, it will be difficult to shift, there will be clutch problems and the transmission may make noises (loose rattling).

- Make sure the intermediate plate fits correctly on the engine.
- Clean the driveshaft splines and grease lightly with Grease For Clutch Disc Shaft Splines - G 000 100-.

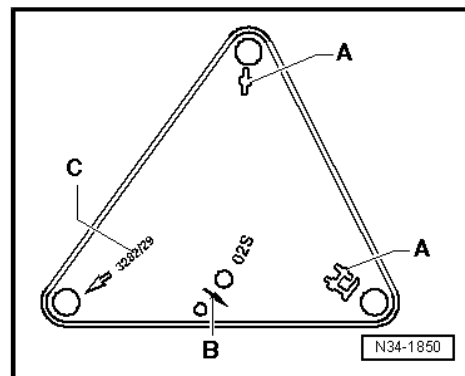
It must be possible to slide the clutch plate back and forth on the input shaft.

Align the Transmission Support - 3282- with the Transmission Support - Mounting Plate 39 - 3282/39- in order to install the “0A4” transmission.

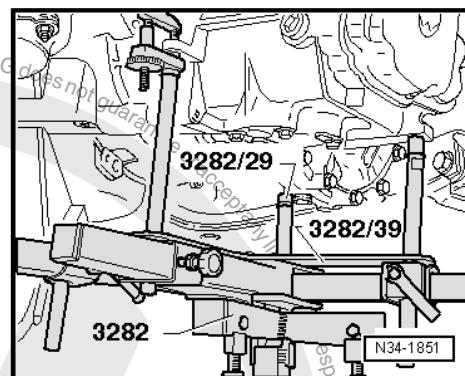
- Align the arms of the Transmission Support so that they match up with the holes in the Adjustment Plate.



- Install the Mounting Elements -A and C- (Transmission Support - Pins 29 - 3282/29-) on the Adjusting Plate as illustrated.
- Place the transmission on the Engine and Gearbox Jack .
- Align the Adjustment Plate so that it is parallel to the transmission.



- Install the Transmission Support - Mounting Plate 29 - 3282/29- into the hole in the transmission for the pendulum support bolt.
- Position the Engine and Gearbox Jack under the vehicle. The -arrow symbol B- on the adjusting plate points in direction of travel.

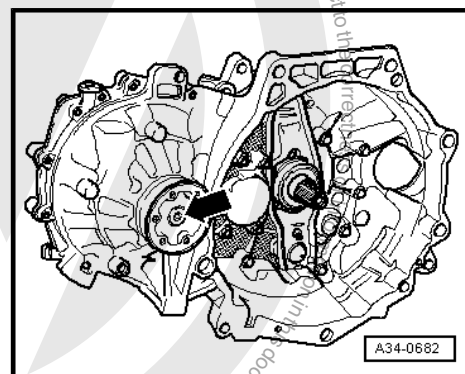


- Remove from a new transmission or replacement transmission right flange shaft -arrow-.



Note

Check the seal for leaks before removing the flange shaft. If the seal has leaks, replace it when installing. Refer to ⇒ "1.5 Seal and Sleeve, One-Piece Right Flange Shaft Seal and Sleeve, Replacing", page 280 .

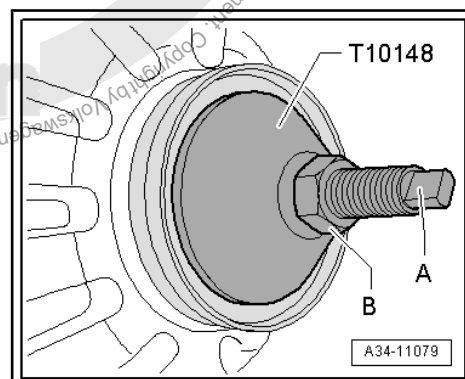


- Attach the spindle -A- for the Seal Installer - Driver Set - 3066- into the threaded piece on the differential.
- Insert the Seal Installer - One-Piece Seal - T10148- and secure with the nut -B-.



Note

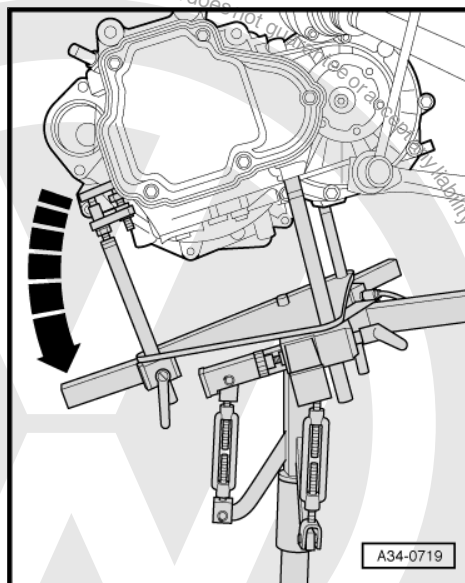
- ◆ *The Seal Installer - One-Piece Seal - T10148- should protect the right seal and the transmission from dirt.*
- ◆ *A M8 x 105 mm bolt may be installed by hand into the differential threaded piece instead of a spindle -A-.*



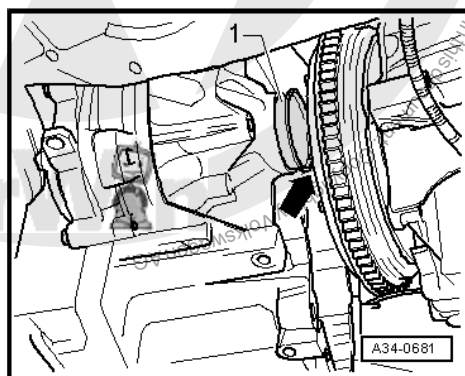
- Carefully lift the transmission. Be careful of the power steering line.



- Tip the transmission over the adjusting spindle for the Transmission Support - 3282- in the direction of the -arrow-.
- Push the engine forward slightly with a second technician.



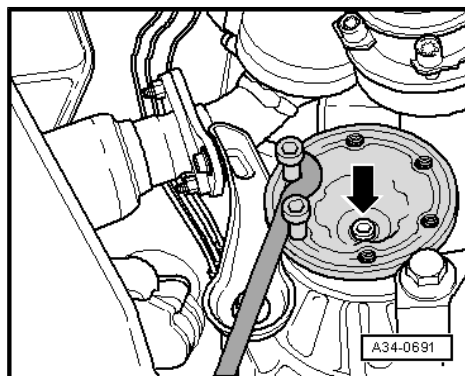
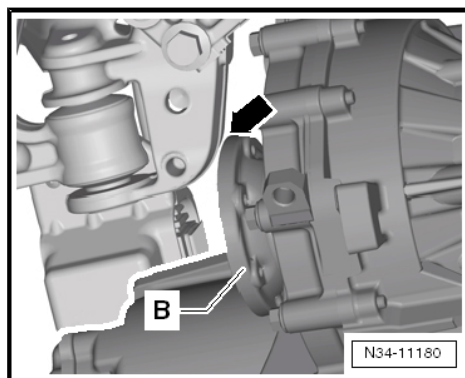
- Carefully lift the transmission with the Engine and Gearbox Jack - VAS6931- , while making sure that the seal -1- is guided through without any damage to the pressure plate -arrow-.



Note

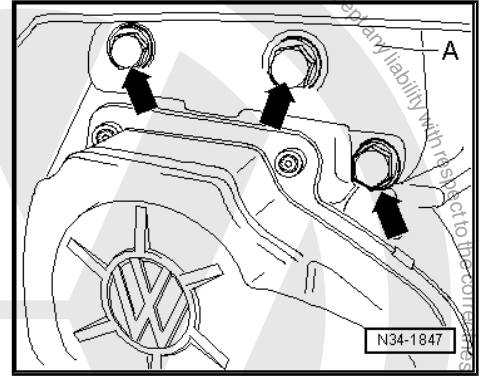
Guide the transmission through when lifting it at the power steering line and with the left flange shaft -B- on the subframe -arrow-.

- Align the transmission with the engine and install it.
- Install the lower bolts for attaching the engine to the transmission and tighten them to the tightening specification. Refer to ➔ ["3.4.1 Tightening Specifications", page 137](#) .
- Reinsert the right flange shaft and tighten the bolt -arrow- to the tightening specification -item 12- ➔ [Item 12 \(page 287\)](#) .
- After the transmission is attached to the engine, remove the Engine and Gearbox Jack from the transmission.
- Install the upper bolts for attaching the engine to the transmission and tighten them to the tightening specification. Refer to ➔ ["3.4.1 Tightening Specifications", page 137](#) .





- Attach the bracket -A- with the new bolts to the transmission -arrows- and tighten them to the tightening specification. Refer to [⇒ “4.1 Overview - Subframe Mount”, page 173](#) .



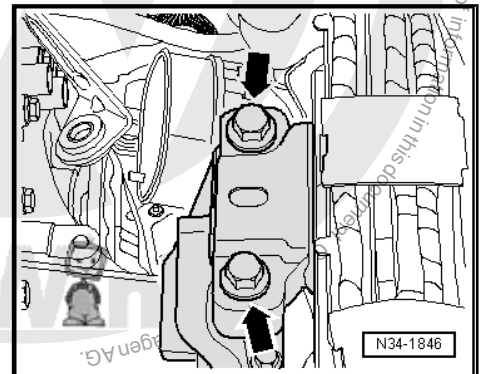
- Align the engine/transmission via both spindles of the Engine Support Bridge - 10-222A- in the installation position.



Caution

There is a risk of damaging the threads in transmission bracket by inserting bolts at an angle.

- ◆ ***Before installing bolts -arrows-, transmission bracket and transmission mount support arm must be absolutely parallel to each other. If necessary, lift the back of the transmission using the Engine and Gearbox Jack .***



Note

Install the engine/transmission mount free of tension. Refer to ⇒ Rep. Gr. 10 ; Engine, Removing and Installing .

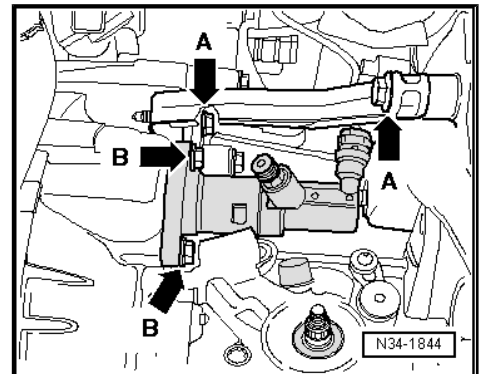
- Install new bolts -arrows- of left assembly mounting into transmission mount and tighten to tightening specification. Refer to [⇒ “4.1 Overview - Subframe Mount”, page 173](#) .



WARNING

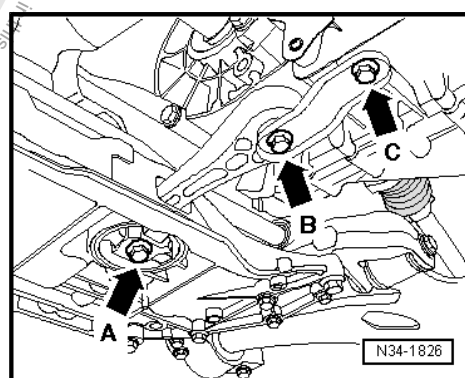
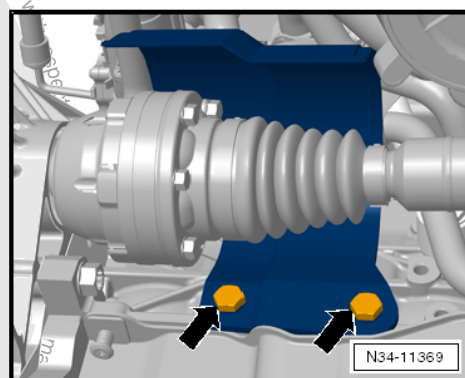
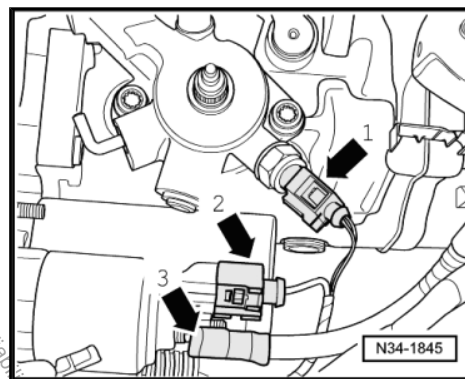
Only remove Engine Support Bridge - 10-222A- when the left and right subframe mount bolts are tightened to the tightening specification.

- Install the clutch slave cylinder and tighten the bolts to the specification -item 15- [⇒ Item 15 \(page 39\)](#) , -arrows B-.
- Install the transmission support -arrows A- and tighten it to the tightening specification. Refer to [⇒ “4.1 Overview - Subframe Mount”, page 173](#) .



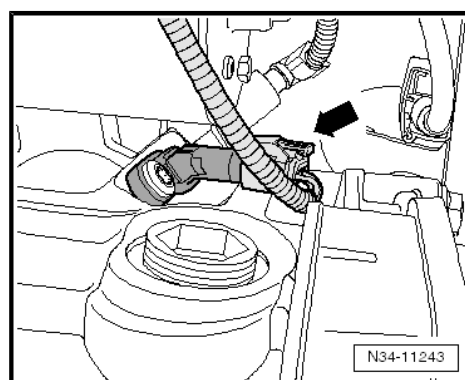


- Connect the connector -1- to the Back-Up Lamp Switch - F4- .
- Install the starter, connect the connector -arrow 2- and attach the wire -arrow 3-. Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Starter; Starter, Removing and Installing .
- Attach the ground cable to the upper engine/transmission connecting bolt.
- Attach the drive axles to the transmission. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Removing and Installing .
- If equipped install the drive axle heat shield -arrows-. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Overview and Servicing; Drive Axle Heat Shield .
- Install pendulum support with new bolts -arrows A, B and C-. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 40 ; Subframe; Overview - Subframe .
- Assemble the exhaust system and then attach the exhaust system bracket it to the subframe. Refer to ➤ Rep. Gr. 26 ; Exhaust System .



For vehicles with the Start/Stop System

- Attach the connector -arrow- to the Transmission Neutral Position Sensor - G701- .

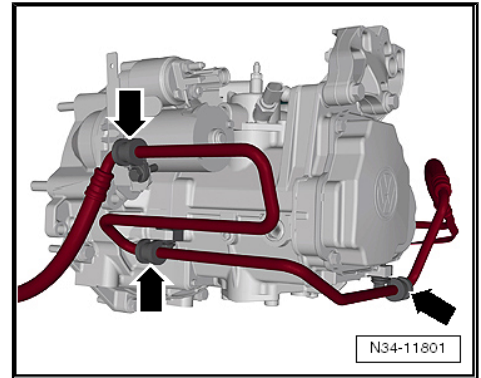




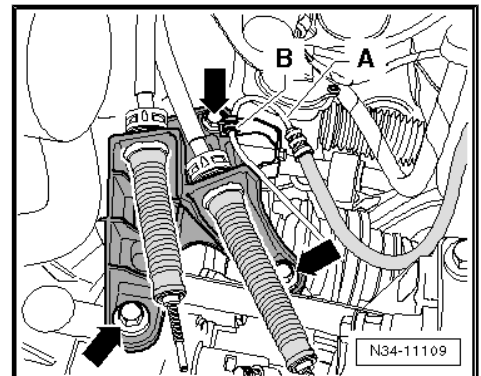
Vehicles with Hydraulic Power Steering

- Attach the power steering line clamps -arrows- to the transmission. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Hydraulic Power Steering; Overview - Hydraulic Power Steering .

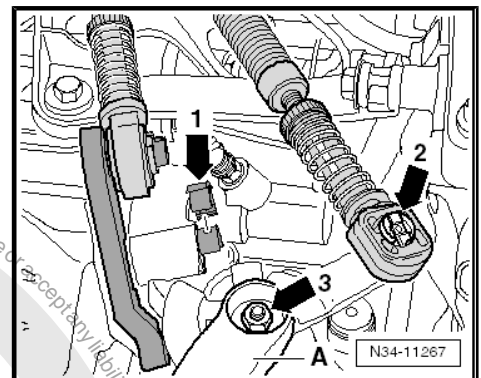
Continuation for all Vehicles



- Attach the bracket -B- to the transmission.
- Press the hose/line assembly -A- into the bracket -B- on the transmission.
- Attach the cable mounting bracket to the transmission and tighten the bolts -arrows- to the tightening specification -item 6- ⇒ [Item 6 \(page 74\)](#) .



- Install the gearshift lever -A-.
- Tighten the nut -arrow 3- to the tightening specification -item 18- ⇒ [Item 18 \(page 76\)](#) .
- Grease the relay lever before installation. Refer to ⇒ ["1.8 Plastic Relay Lever", page 77](#) .
- Allocate the grease for gearshift mechanism. Refer to the Parts Catalog.
- Insert the relay lever together with the cable retainer and secure them with the clip -arrow 1-.
- Coat the pin on the gearshift lever with a small amount of grease -A-.
- Install the shift cable on the gearshift lever -A- and secure it with new lock washer -arrow 2-.
- The clip -arrow 1- secures the relay lever.
- Make sure the clips locks securely.



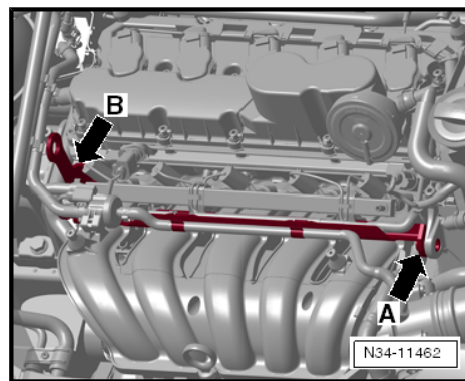
Note

The relay lever is secured by a notch on some vehicles. Refer to ⇒ ["1.8 Plastic Relay Lever", page 77](#) .

- Remove the Engine/Gearbox Support Shackle (2 pc.) - 10-222A/12- from the engine.



- Attach the transport strap to the lifting eye on the engine -arrow A- and tighten it -arrow B- ⇒ Rep. Gr. 15 ; Cylinder Head; Overview - Cylinder Head .
- Install the plenum chamber cover. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Plenum Chamber Cover; Plenum Chamber Cover, Removing and Installing .

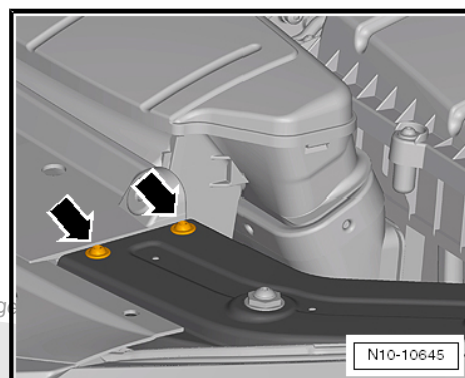


- Install the bolts -arrows- for the left and right lock carrier retaining brackets to the tightening specification. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Lock Carrier; Lock Carrier - Attachments .



Note

If when removing the flange shaft, the transmission fluid leaks out, drain and fill the transmission fluid for the installed transmission and flange shaft. Refer to
⇒ "6 Transmission Fluid, Checking and Filling", page 176 .



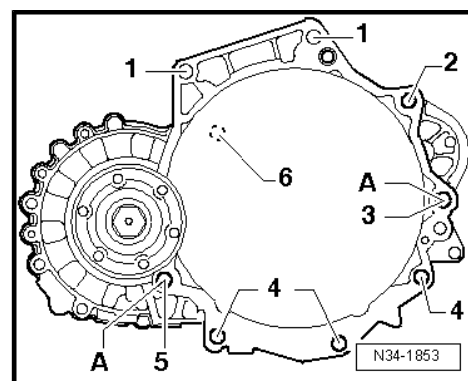
- Install the battery tray and the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .
- Install the engine cover and air filter. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .
- Connect the battery and follow the procedure regarding what to do after connecting a battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Install the left front wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Front Wheel Housing Liner, Removing and Installing .
- Install the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Install the wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44 ; Wheel Installation Tightening Specifications .



3.4.1 Tightening Specifications

Transmission to engine

Item	Bolt	Quantity	Nm
1	M 12 x 65	2	80
2	M 12 x 170 ♦ Also starter to transmission	1	80
3	M 12 x 170 ♦ Also starter to transmission	1	80
4	M 10 x 65	3	40
5	M 12 x 95	1	80
6	M6 x 8 ♦ Small flywheel cover plate (not present here)	1	10



-A- alignment sleeves for centering

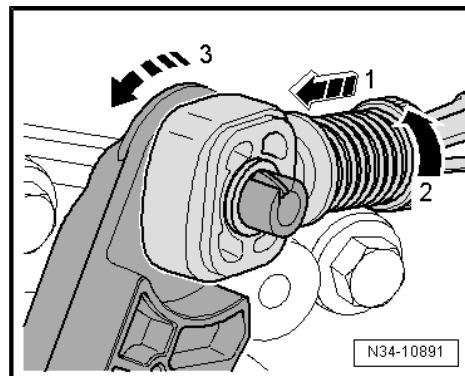
Component	Nm
Bracket for lower starter plug wires	20
Ground cable to engine/transmission bolt	20

3.5 Transmission, Removing, Jetta MY 2011, 1.8L 125 kW

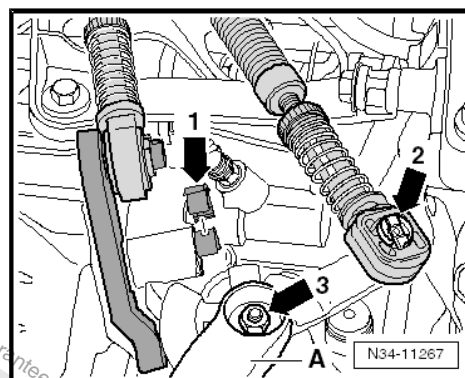
- ♦ Engine Support Bridge - 10-222A
- ♦ Transmission Support - 3282-
- ♦ Engine and Gearbox Jack - VAS6931-
- ♦ or Engine and Gearbox Jack - VAS6931-
- ♦ Tensioning Strap - T10038-
- ♦ Engine Support - Basic Set - T40091-
- ♦ Engine Support - Supplement Kit - T40093A-
- ♦ Spindle from the Seal Installer - Driver Set - 3066- or bolt M8 x 105
- ♦ Transmission Support - Pins 29 - 3282/29-
- ♦ Transmission Support - Mounting Plate 39 - 3282/39-
- ♦ Seal Installer - One-Piece Seal - T10148-
- ♦ Lubricating Grease for Clutch Plate Splines
- ♦ Refer to the Parts Catalog for the grease allocation.
- ♦ Allocate the grease for selector mechanism. Refer to the Parts Catalog.
- Disconnect the battery ground cable. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Remove the engine cover. Refer to ⇒ Rep. Gr. 10 ; Engine Cover; Engine Cover, Removing and Installing .



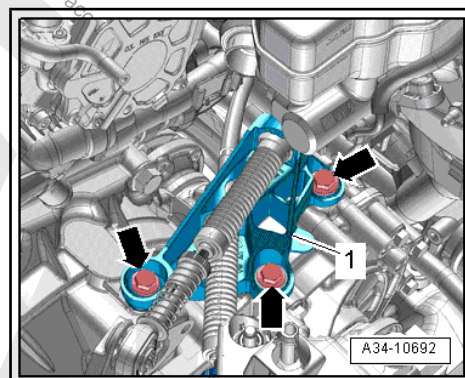
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .
- Remove the battery and the battery tray. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery Tray, Removing and Installing .
- Pull the selector cable securing mechanism all the way forward in the direction of -arrow 1- and then unlock in the direction of -arrow 2-.
- Push the relay lever toward the front direction of -arrow 3- and at the same time remove the selector cable.



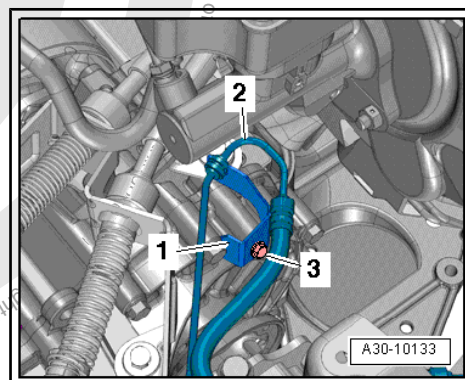
- Remove the clip -arrow 1- and remove the relay lever along with the cable retainer.
- Remove the lock washer -arrow 2- and remove the shift cable from the gearshift lever -A-.
- Remove the nut -arrow 3- and then remove the transmission shift lever -A-.



- Remove the cable bracket -1- from the transmission -arrows-.
- Tie up the cables with the cable bracket to the side.



- Free up the wire -2- from the bracket -1-.
- Remove the bolt -3- and then the bracket.





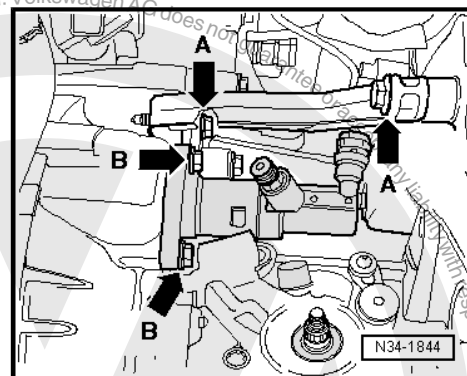
- Remove the transmission support -arrows A-.
- Remove clutch slave cylinder -arrow B- and lay aside, secure with wire, do not open line system.



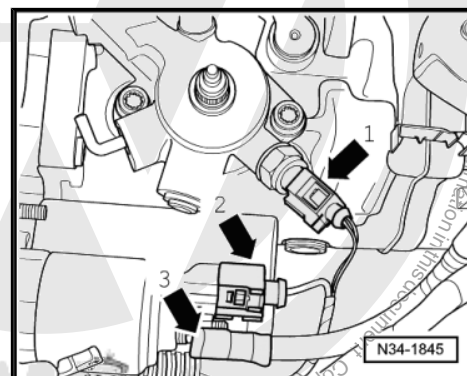
Caution

The clutch slave cylinder could be damaged.

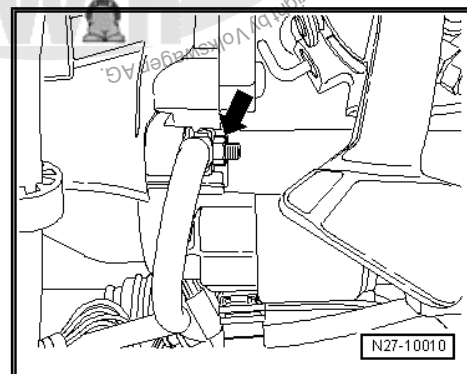
- ◆ *If the clutch slave cylinder is removed from the transmission with pipe/hose line still connected, do not press the clutch pedal.*



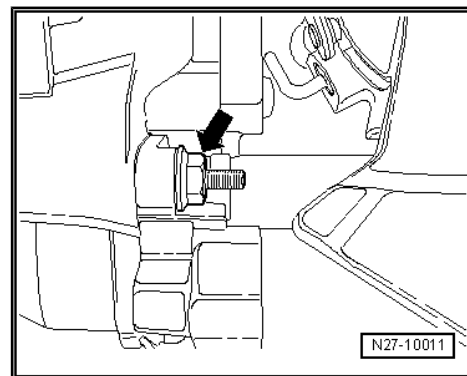
- Disconnect the connector -arrow 1- from the Back-Up Lamp Switch - F4- .
- Remove the connector -arrow 2- and wire -arrow 3- from the starter.



- Remove the ground cable from the bolt on the top of the starter -arrow-.

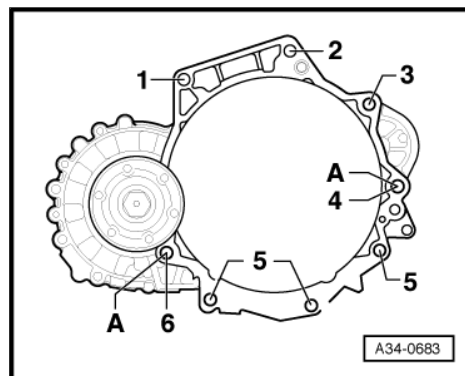


- Remove the upper bolt from the starter -arrow-.





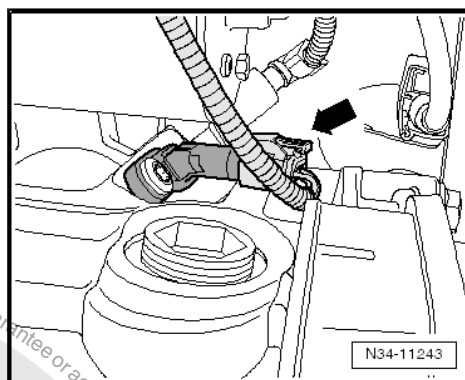
- Remove the bolt -1 and 2- that connect the transmission to the engine. They are accessible from above.
- Lift the vehicle and remove the left front wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44 ; Wheels, Tires .
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation; Overview - Noise Insulation .
- Remove the left front housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Overview - Front Wheel Housing Liner .



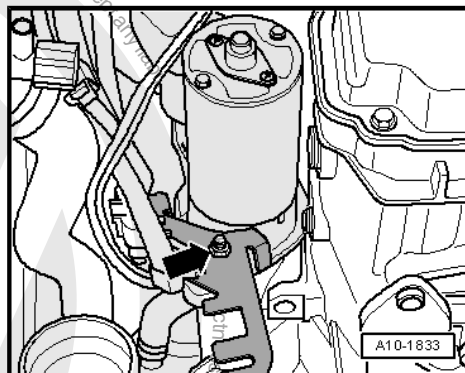
For vehicles with the Start/Stop System

- Disconnect the connector -arrow- from the Transmission Neutral Position Sensor - G701- .

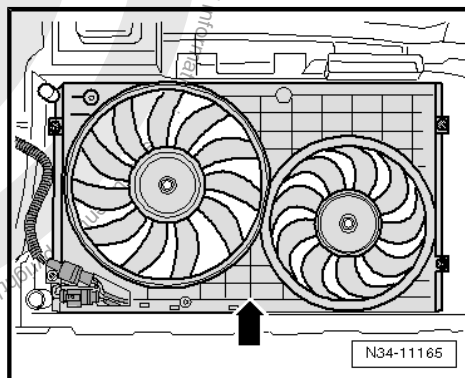
Continuation for all vehicles



- Remove the nut -arrow- and then remove the wire bracket.
- Remove the lower bolt from the starter and then remove the starter. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Starter; Starter, Removing and Installing .



- Remove the fan shroud with the radiator fan -arrow-. Refer to ⇒ Rep. Gr. 19 ; Radiator/Radiator Fan; Fan Shroud, Removing and Installing .

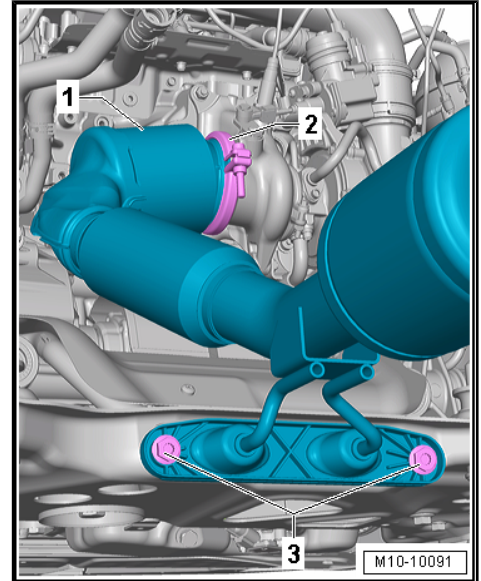




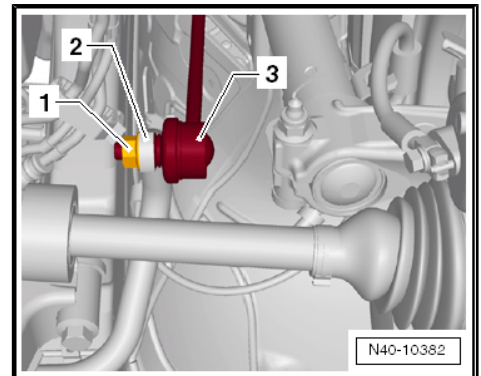
- Remove bolt -2- and remove the clamp. Refer to ➤ Rep. Gr. 26 ; Emissions Control System; Overview - Emissions Control System .
- Remove the catalytic converter bracket nuts -3- on the sub-frame.
- Tie up the front exhaust pipe to the side.

Note

Do not bend the decoupling element in the front exhaust pipe more than 10° or it will be damaged.



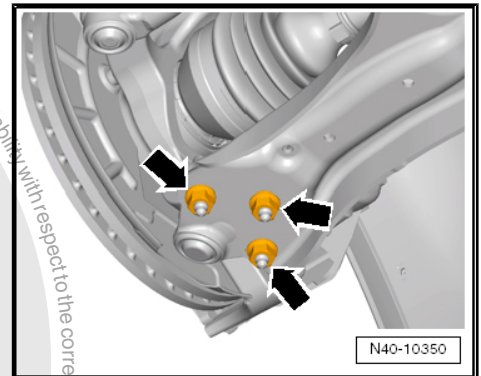
- Remove the nut -1- from the left coupling rod -3-.
- Remove the left coupling rod -3- from the stabilizer bar -2-.



- Remove the nuts -arrows- on the left ball joint.
- Remove the left control arm from the left ball joint to do so bend the control arm downward as far as required.
- Remove the left drive axle from the flange shaft. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axle, Drive Axle, Removing and Installing .

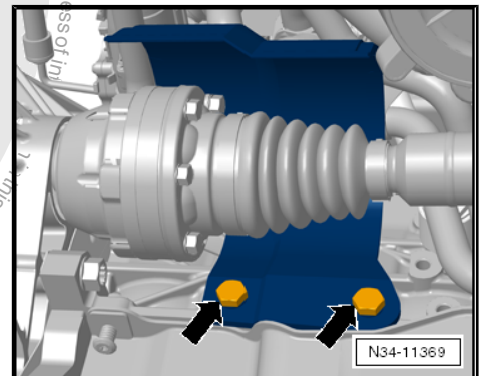
Remove the left drive axle between the subframe and the transmission.

Guide the drive axle in the wheel housing and with a cable tie or Tensioning Strap - T10038- secure it to the suspension strut.



Remove the heat shield above the right drive axle -arrows-.

Remove the right drive axle from the flange shaft and tie them up as high as possible. Be careful not to damage the surface protection. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axle, Drive Axle, Removing and Installing .



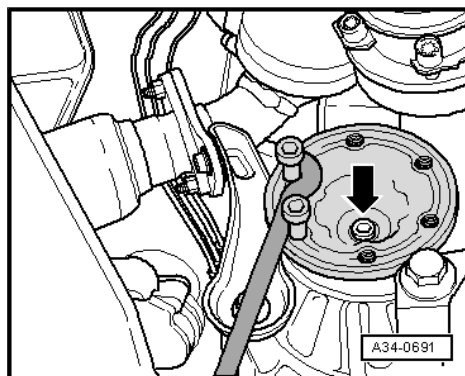


- Install two bolts in the flange and counterhold the flange shaft with the pry lever to remove the right flange shaft bolt -arrow-.
- Remove the flange shaft.



Note

- ♦ Check the seal for leaks before removing the flange shaft. If the seal has leaks, replace it when installing. Refer to ➔ ["1 Seals", page 276](#).
- ♦ If the transmission fluid leaks out when removing the flange shaft, drain and fill the transmission fluid for the installed transmission and flange shaft. Refer to ➔ ["6 Transmission Fluid, Checking and Filling", page 176](#).

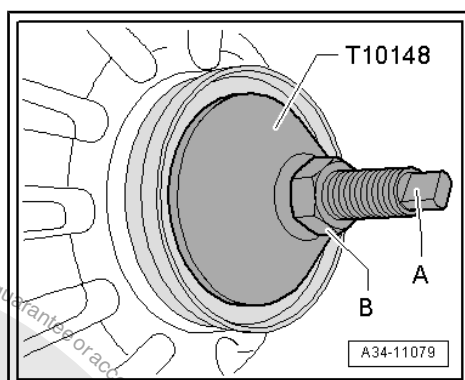


- Attach the spindle -A- from the Seal Installer - Driver Set - 3066- into the threaded piece on the differential.
- Insert the Seal Installer - One-Piece Seal - T10148- and secure with the nut -B-.

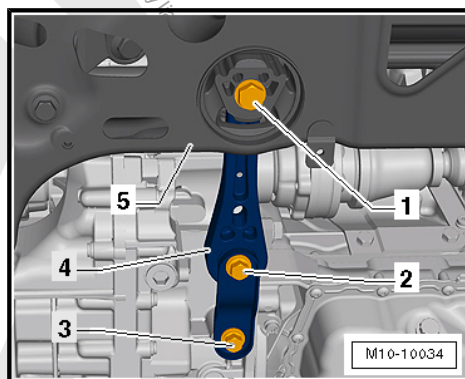


Note

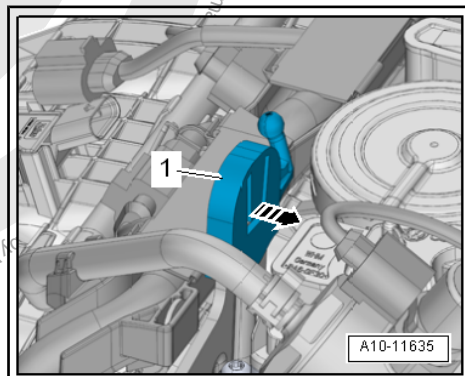
- ♦ The Seal Installer - One-Piece Seal - T10148- should protect the right seal and the transmission from dirt.
- ♦ A M8 x 105 mm bolt may be installed by hand into the differential threaded piece instead of a spindle -A-.



- Remove the pendulum support -4- bolt -1- from the subframe -5-.
- Then remove the bolts -2 and 3-.
- Remove the pendulum support.
- Remove the plenum chamber cover. Refer to ➔ Body Exterior; Rep. Gr. 50 ; Bulkhead; Plenum Chamber Cover, Removing and Installing .

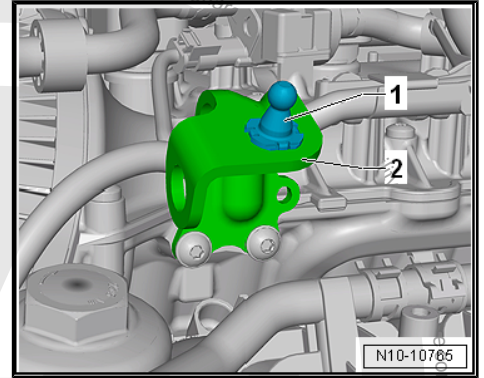


- Release the locking mechanism in direction of -arrow- and remove the engine cover mount -1- from the left engine lifting eye. Refer to ➔ Rep. Gr. 10 ; Assembly Mounts; Supporting the Engine in Installation Position .

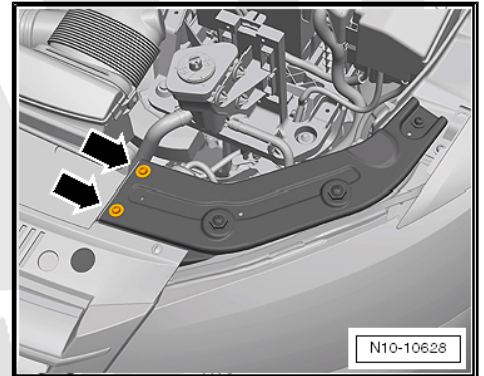




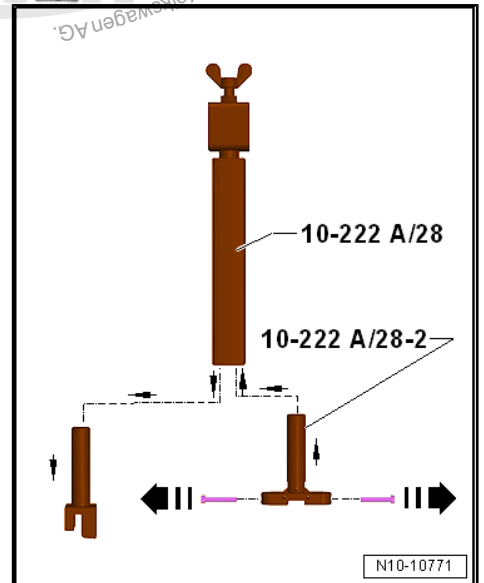
- Unclip the engine cover mount -1- from the right engine lifting eye -2-. Refer to ➔ Rep. Gr. 10 ; Assembly Mounts; Supporting the Engine in Installation Position



- Remove the bolts -arrows- for the left and right lock carrier supports.



- Remove the lower mounts on the -10-222A/28- and replace with the -10-222A/28-2- .



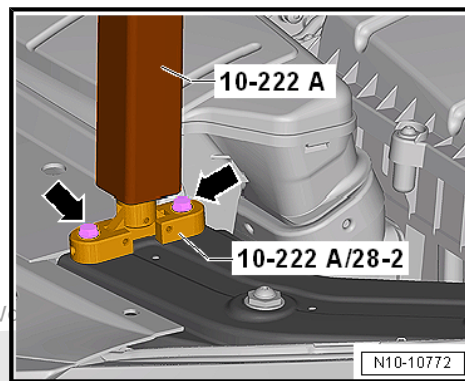


- Place the -10-222A/28- with the -10-222A/28-2- on the left and right side of the lock carrier. Install in the threaded holes on the lock carrier supports -arrows-.
- Use the bolts from the -10-222A/28-2- for attaching the -10-222A/28-. Do not use the bolts for the supports
⇒ [page 143](#) .
- Bolt tightening specification -arrows-: 8 Nm



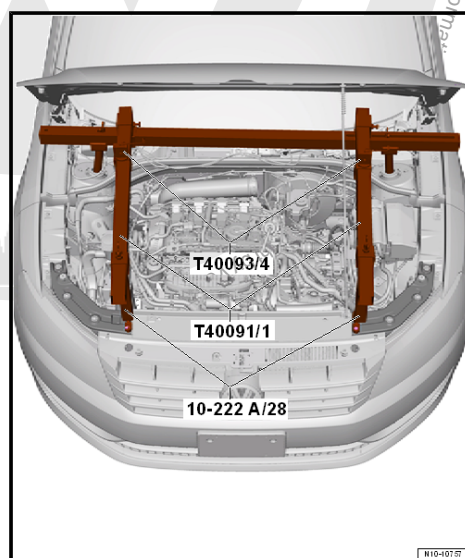
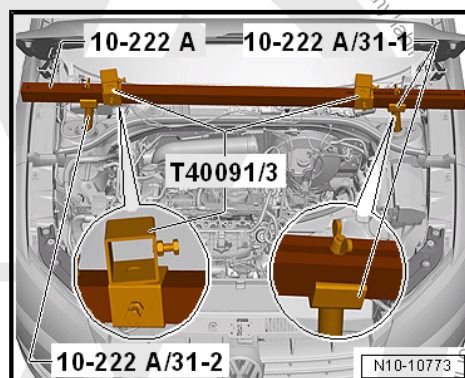
Caution

A second technician is required to mount the Engine Support Bridge - 10-222A- on the vehicle to prevent the Engine Support Bridge from tipping.



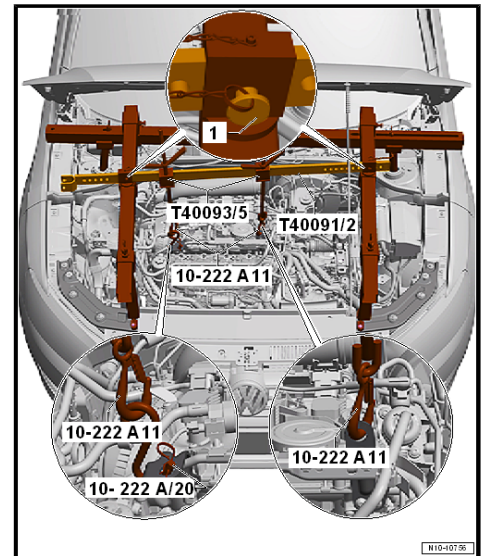
To Support the Engine/Transmission Assembly, Mount the Engine Support Bridge as Follows:

- First slide the -T40091/3- onto the Square Pipe from the -10-222A- .
- The bolts for the -T40091/3- point in the direction of travel -as shown-.
- Connect the -10-222A/31-1- and -10-222A/31-2- to the -10-222A- -as shown-, but do not tighten the bolts yet.
- Mount the -10-222A- on the suspension strut towers and have a second technician hold it to prevent it from tipping.
- Slide the -T40091/1- left and right from the front through the -10-222A/28- and set the -T40093/4- on each side.

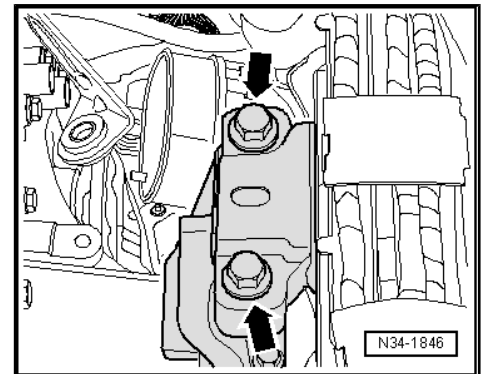




- Slide the -T40091/2- through a -T40093/4- and position on both -T40093/5- .
- Guide the -T40091/2- through the second -T40093/4- .
- Install the locking pins -1- into the -T40091/2- and secure it with cotter pins.
- Hand-tighten all the threaded connections on the -10-222A- . While doing so, adjust the height of the -10-222A- parallel over the -10-222A/28- .
- Lightly pretension the engine/transmission assembly using the -10-222A/11- . Do not lift.



- Remove the left subframe mount hex bolts -arrows- from the transmission mounting.
- Bring engine/transmission assembly into angled position by lowering it via the spindles on the - 10-222A- .



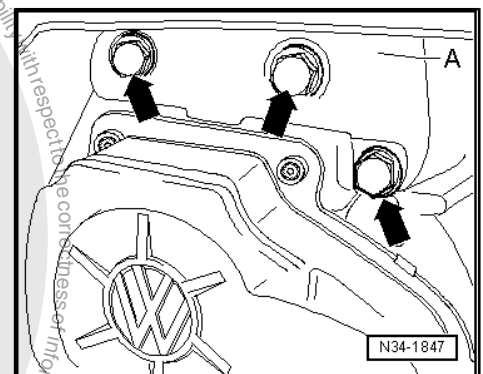
- The bolts -arrows- for the transmission bracket -A- must be accessible.



Caution

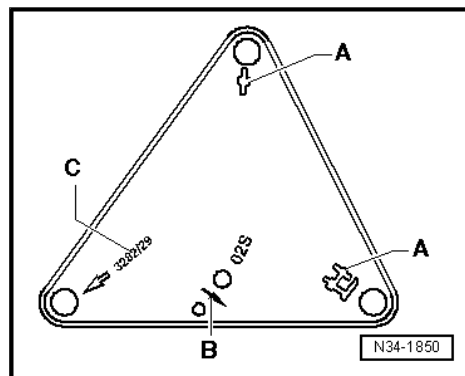
When lowering the engine/transmission assembly pay attention that no components from the ribbed belt drive contact the longitudinal member.

- Remove the transmission bracket -A- -arrows-.
- Align the Transmission Support - 3282- with the Transmission Support - Mounting Plate 39 - 3282/39- in order to remove the "0A4" transmission.
- Insert the Transmission Support - 3282- in the Engine/Gear-box Jack .
- Align the arms of the Transmission Support so that they align with the holes in the Adjustment Plate.

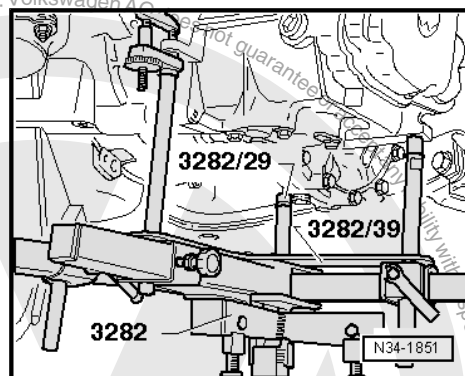




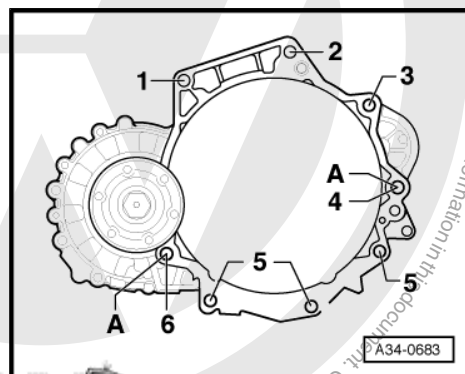
- Install the Mounting Elements -A and C-, on the Adjusting Plate , as shown.
- Position the Engine and Transmission Jack under the vehicle. The arrow symbol -B- on the Adjusting Plate points in the direction of travel.



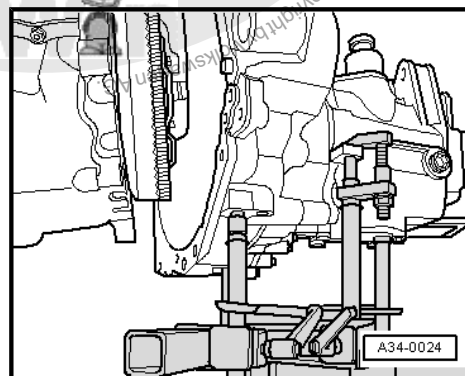
- Align the adjusting plate so that it is parallel to the transmission and secure the safety support to the transmission.
- Install the -3282/29- into the rear hole for the pendulum support bolt on the transmission.
- Support the transmission by lifting the Engine and Gearbox Jack from underneath.



- Remove the remaining transmission to engine connection bolts -5 and 6-.

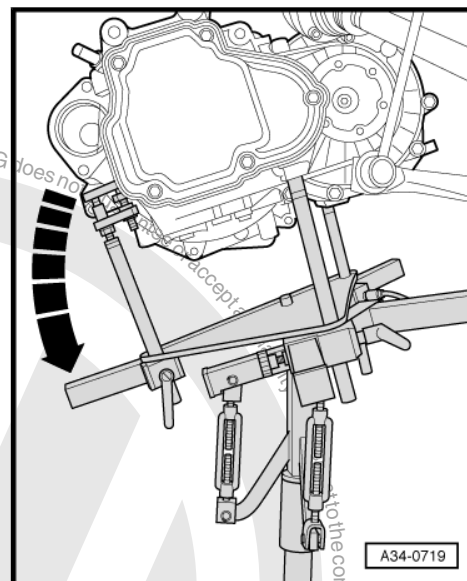


- Remove the transmission from the alignment bushings and carefully move it toward the subframe.

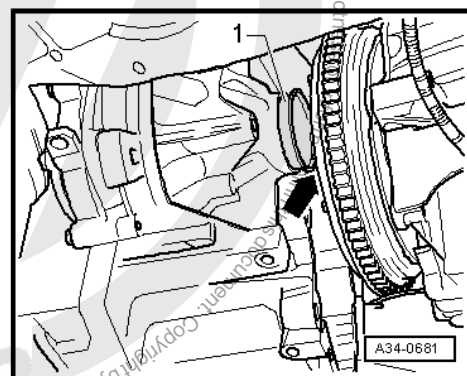




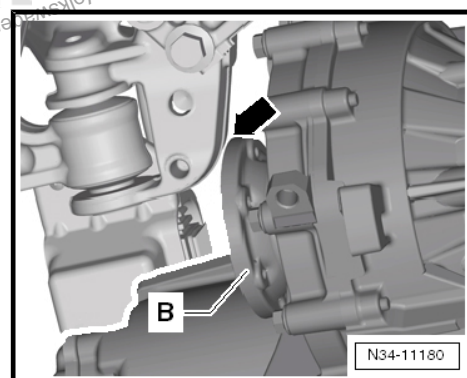
- Tip the transmission over the adjusting spindle for the -3282- in the direction of -arrow-.
- Push the engine forward slightly with a second technician.



- Carefully lower the transmission with the Engine and Gearbox Jack , while making sure that the right flange shaft seal -1- is guided through without any damage to the pressure plate -arrow-.

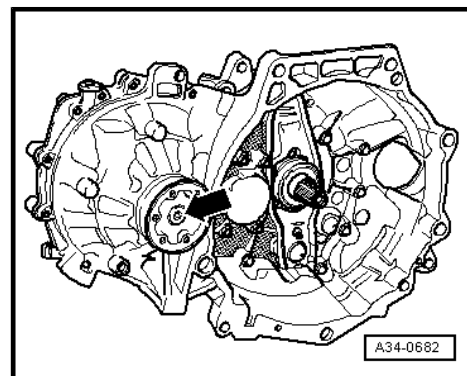


- Guide the left flange shaft -B- as shown on the subframe -arrow-. Move the Engine and Gearbox Jack with the transmission to the front.
- When lowering, change the transmission position using the spindles on the -3282- .



- Reinsert the right flange shaft if necessary and tighten the bolt -arrow- to 25 Nm.

Transmission, transporting. Refer to
⇒ ["5 Transmission, Transporting", page 175](#) .





3.6 Transmission, Installing, Jetta MY 2011, 1.8L 125 kW

⇒ [“3.6.1 Transmission, Installing, Jetta MY 2011, 1.8L 125 kW”,
page 148](#)

⇒ [“3.6.2 Tightening Specifications”, page 156](#)

3.6.1 Transmission, Installing, Jetta MY 2011, 1.8L 125 kW



Note

Refer to “Transmission, Removing” to get a list of the required special tools. Refer to

⇒ [“3.3 Transmission, Removing, Jetta MY 2011, 2.5L 125 kW”,
page 120](#).

Pay attention to the following list regarding “Transmission Fluid, Checking and Filling”

“Transmission Fluid, Checking and Filling”				
Transmission		»No«	»Yes«	»Yes«
	Original Part	X		
	No oil outlet	X		
	Was completely disassembled		X before installation ⇒ Item 3 (page 203) transmission fluid capacity. Refer to ⇒ “2.3 Codes, Transmission Allocation and Capacities”, page 3	
	Was partially disassembled • (The transmission housing and the clutch housing were not separated from each other)			X after installation. Refer to ⇒ “6 Transmission Fluid, Checking and Filling”, page 176 .

- Clean any locking compound residue from all threaded holes using a tap.
- Replace self-locking bolts and nuts after removing them.



- Make sure the alignment sleeves for centering the engine/ transmission are installed inside the cylinder block. Install them if necessary.

If the alignment sleeves are missing, it will be difficult to shift, there will be clutch problems and the transmission may make noises (loose rattling).

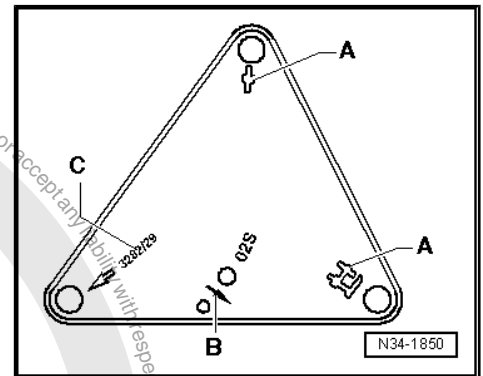
- Clean the splines on the input shaft and then lubricate them lightly with Grease for Clutch Plate Shaft Splines .

It must be possible to slide the clutch plate back and forth on the input shaft.

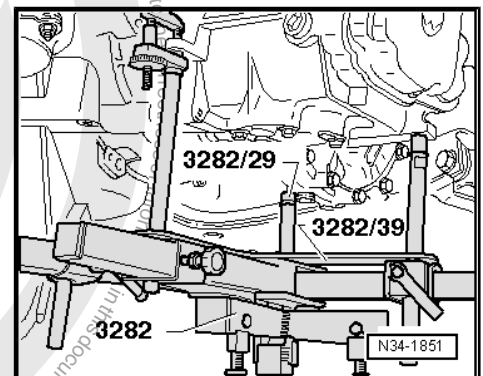
- Check the clutch release bearing for wear and replace if necessary.

Align the -3282- with the -3282/39- in order to install the “0A4” transmission.

- Align the arms of the Transmission Support so that they align with the holes in the Adjustment Plate .
- Install the Mounting Elements -A and C- (-3282/29-) on the Adjusting Plate as shown.
- Place the transmission on the Engine and Gearbox Jack .
- Align the Adjustment Plate so that it is parallel to the transmission.



- Install the Transmission Support - Pins 29 - 3282/29- in the rear hole for the pendulum support bolt on the transmission.
- Position the Engine and Gearbox Jack under the vehicle. The -arrow symbol B- on the adjusting plate points in direction of travel.

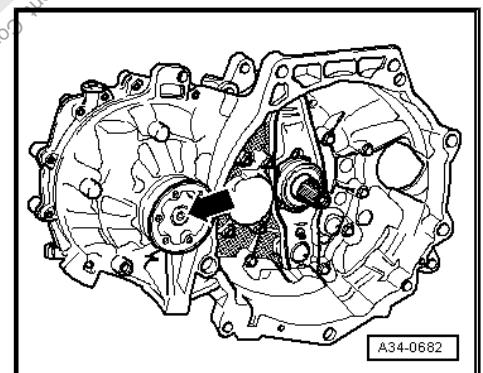


- On a new transmission or replacement transmission remove the right flange shaft -arrow-.



Note

- ◆ Check the seal for leaks before removing the flange shaft. If the seal has leaks, replace it when installing. Refer to [⇒ “1 Seals”, page 276](#) .
- ◆ If the transmission fluid leaks out when removing the flange shaft, drain and fill the transmission fluid for the installed transmission and flange shaft. Refer to [⇒ “6 Transmission Fluid, Checking and Filling”, page 176](#) .



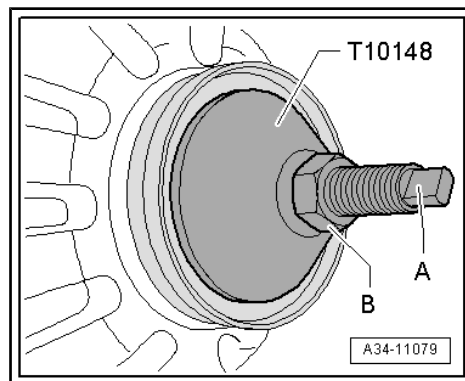


- Attach the spindle -A- from the Seal Installer - Driver Set - 3066- into the threaded piece on the differential.
- Insert the -T10148- and secure with the nut -B-.

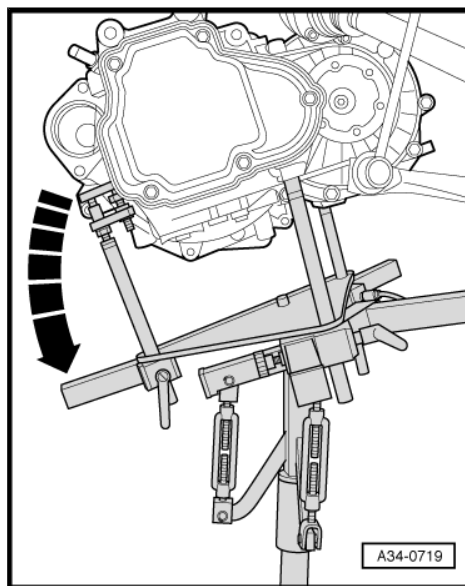


Note

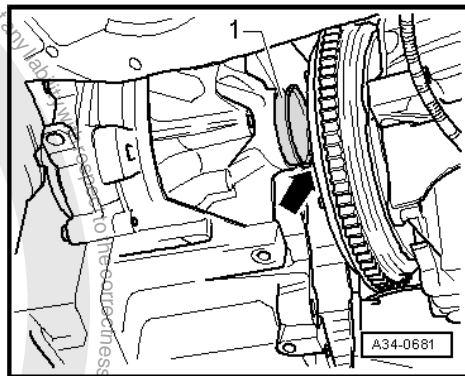
- ◆ The Seal Installer - One-Piece Seal - T10148- should protect the right seal and the transmission from dirt.
- ◆ A M8 x 105 mm bolt may be installed by hand into the differential threaded piece instead of a spindle -A-.



- Tip the transmission over the adjusting spindle for the Transmission Support - 3282- in the direction of -arrow-.
- Push the engine forward slightly with a second technician.

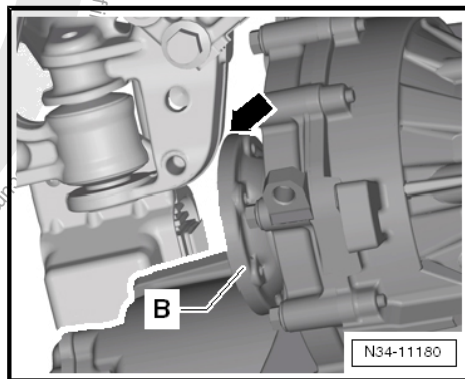


- Carefully lift the transmission with the Engine and Gearbox Jack, while making sure that the seal -1- is guided through without any damage to the pressure plate -arrow-.



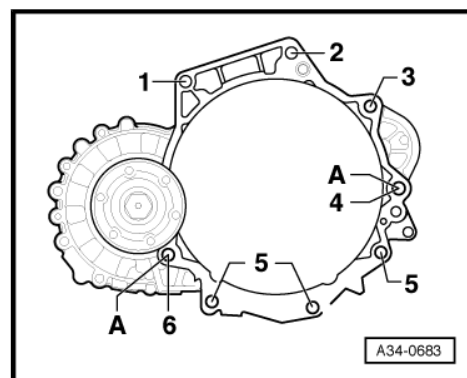
Note

- ◆ Vehicles with hydraulic power steering pay attention to the power steering lines.
- ◆ Guide the left flange shaft -B- past the subframe -arrow-.
- Align the transmission with the engine and install it.

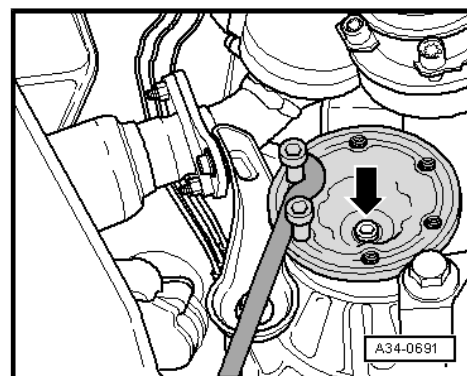




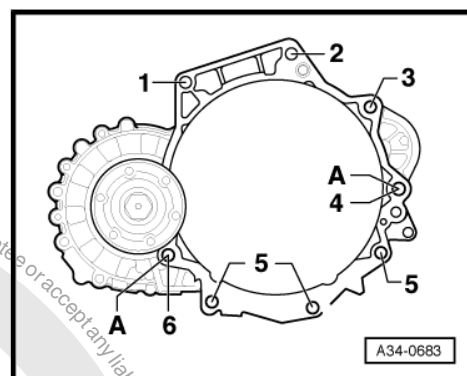
- Install the lower bolts -5 and 6- for the engine on the transmission and tighten them to the tightening specification. Refer to ➤ [“3.6.2 Tightening Specifications”, page 156](#) .



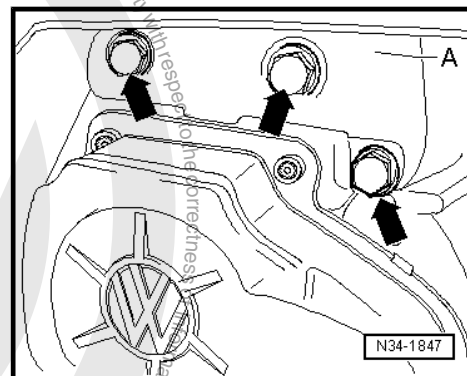
- Reinsert the right flange shaft and tighten the bolt -arrow- to the tightening specification. Refer to ➤ [“3 Differential”, page 285](#) .
- After the transmission is attached to the engine, remove the Engine and Gearbox Jack from the transmission.



- Install the upper bolts -1 and 2- for the engine on the transmission and tighten them to the tightening specification. Refer to ➤ [“3.6.2 Tightening Specifications”, page 156](#) .



- Attach the bracket -A- with the new bolts to the transmission -arrows- and tighten them to the tightening specification. Refer to ➤ [“4 Subframe Mount”, page 173](#) .





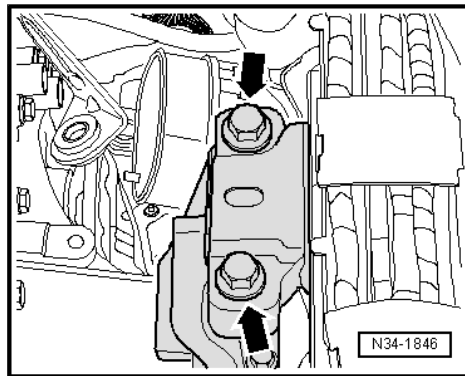
- Align the engine/transmission in its installation position. To do so, lift it until the transmission bracket is completely touching the transmission mount.



Caution

There is a risk of damaging the threads in the transmission bracket by inserting the bolts at an angle.

- ♦ *The transmission bracket and the transmission mount support arm must be absolutely parallel to each other before installing the bolts -arrows-. If necessary, lift the back of the transmission using the Engine and Gearbox Jack .*



Note

Install the engine/transmission mount free of tension. Refer to ⇒ Rep. Gr. 10 ; Subframe Mount; Subframe Mount, Adjusting .

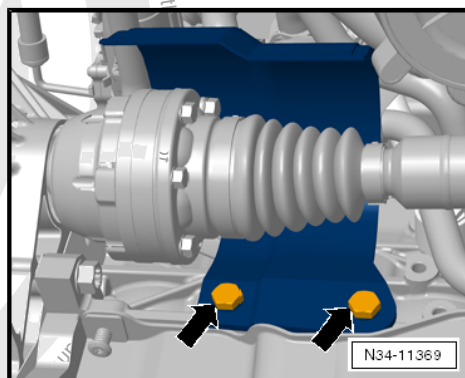
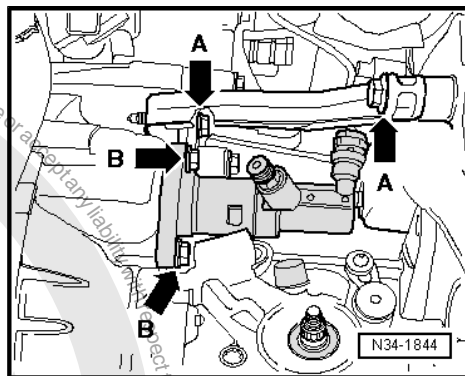
- Install new bolts -arrows- from the left assembly mounting into transmission mount and tighten to tightening specification. Refer to ⇒ [“4 Subframe Mount”, page 173](#) .



WARNING

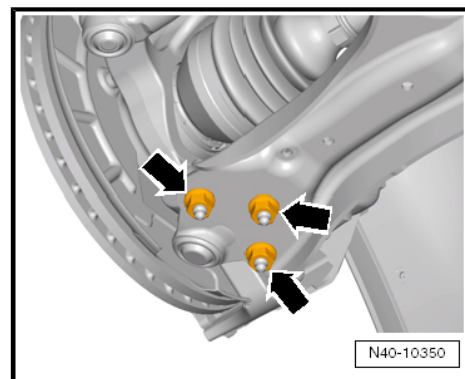
Only remove the Engine Support Bridge - 10-222A- when the left and right subframe mount bolts are tightened to the tightening specification.

- Install the clutch slave cylinder and tighten the bolts -B arrows-. Refer to ⇒ [“2 Clutch Release Mechanism, Servicing”, page 45](#) .
- Install the transmission support -arrows A- and tighten it to the tightening specification. Refer to ⇒ [“4 Subframe Mount”, page 173](#) .
- Attach the drive axles to the transmission. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axle; Drive Axle, Removing and Installing .
- Install the heat shield over the right drive axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axle; Drive Axle Heat Shield, Removing and Installing .

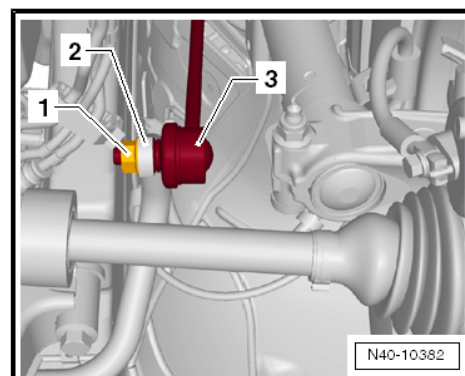




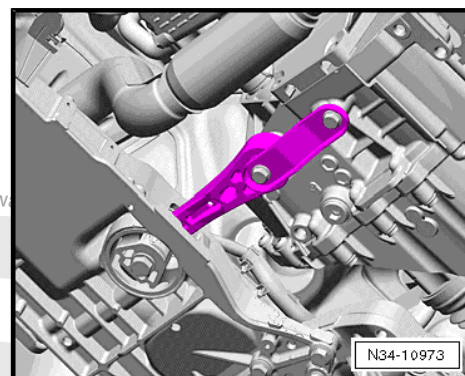
- Attach the left ball joint to the left control arm -arrows-. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Overview - Lower Ball Joint, Ball Joint .



- Attach the left coupling rod -3- to the stabilizer bar -2-. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Subframe .



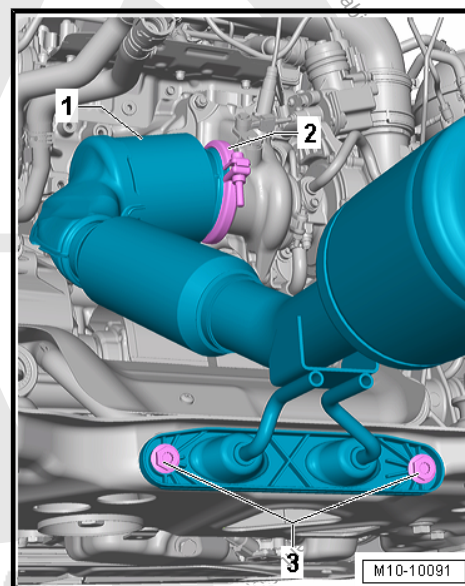
- Install pendulum support with new bolts. Refer to ⇒ Rep. Gr. 10 ; Overview - Subframe Mount .



- Install exhaust pipe -1- with new clamp -2- on the turbocharger and attach to the subframe with bolts -3-. Refer to ⇒ Rep. Gr. 26 ; Overview - Emissions Control .

- Align the exhaust system free of tension. Refer to ⇒ Rep. Gr. 26 ; Exhaust Pipes/Muffler; Exhaust System, Aligning without Tension .

- Install the starter. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Starter; Starter, Removing and Installing .





- Attach the wire bracket to the lower starter bolt and tighten the nut -1- to the tightening specification. Refer to [⇒ “3.6.2 Tightening Specifications”, page 156](#) .
- Connect the connector -3- to the Back-Up Lamp Switch - F4- .

For vehicles with the Start/Stop System

- Attach the connector -2- to the Transmission Neutral Position Sensor - G701- .

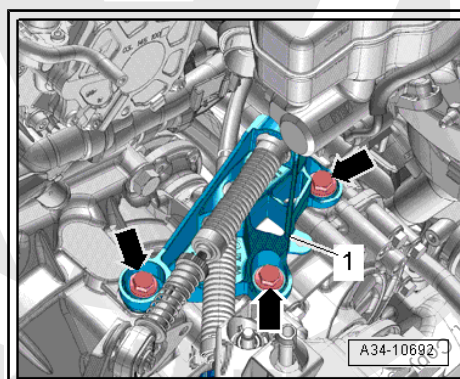
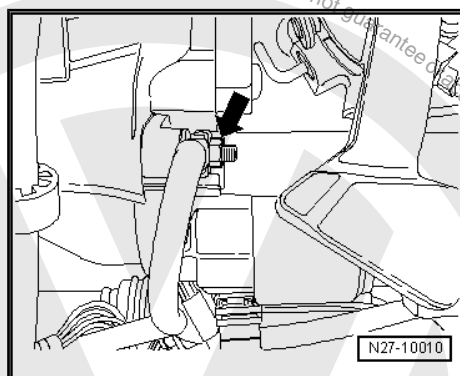
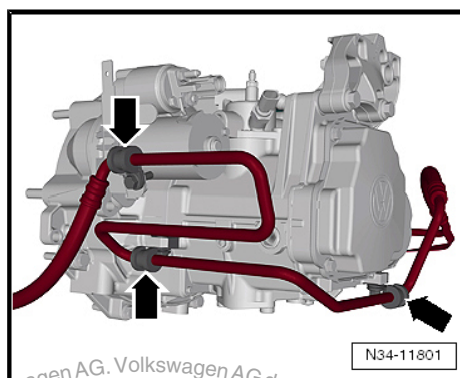
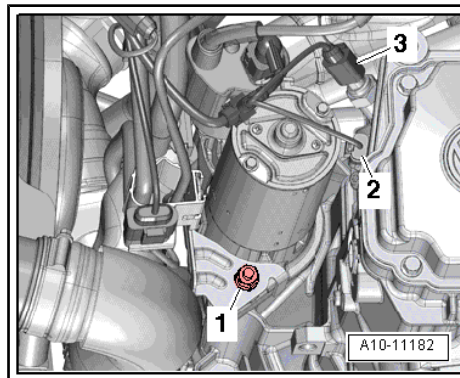
Vehicles with hydraulic power steering

- Attach the clamps -arrows- for the power steering line to the transmission. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Hydraulic Power Steering; Overview - Reservoir Hydraulic Lines .

Continuation for all vehicles

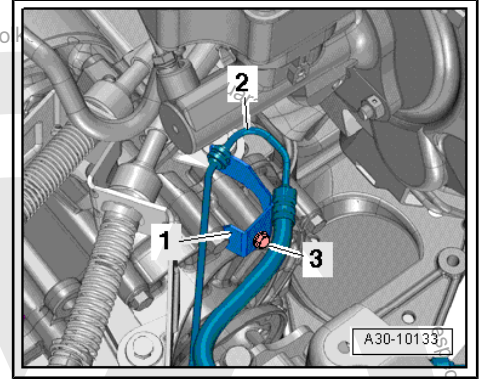
- Attach the ground cable to the upper starter bolt and tighten the nut -arrow- to the tightening specification. Refer to [⇒ “3.6.2 Tightening Specifications”, page 156](#) .

- Install the cable bracket -1- on the transmission and tighten the bolt -arrows- to the tightening specification. Refer to [⇒ “1.7 Overview - Operating Cables, Removing and Installing”, page 73](#) .

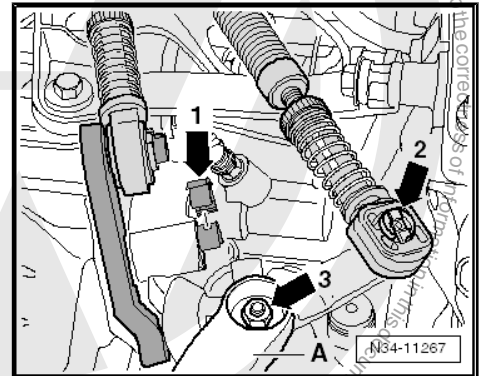




- Tighten the bracket -1- for the hose/line assembly and the bolt -3- to the transmission.
- Press the hose/line assembly -2- in the bracket -1-.

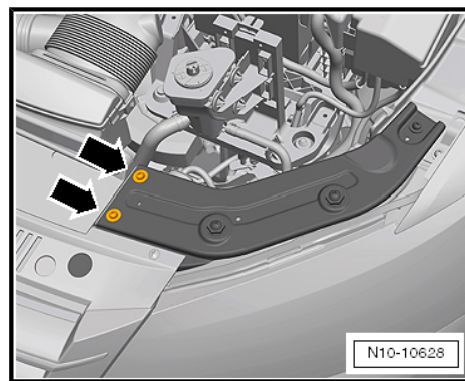


- Install the gearshift lever -A-.
- Tighten the nut -arrow 3- to the tightening specification. Refer to ⇒ ["9 Shift Unit, Servicing", page 208](#).
- Grease the relay lever before installation, ⇒ ["1.8 Plastic Relay Lever", page 77](#).
- Allocate the grease for selector mechanism. Refer to the Parts Catalog.
- Insert the relay lever together with the cable retainer and secure using the clip -arrow 1-.
- Coat the pin on the gearshift lever with a small amount of grease -A-.
- Place the shift cable on the selector lever -A- and secure with the new lock washer -arrow 2-.
- Connect the selector cable to the cable retainer.
- Adjust the gearshift mechanism. Refer to ⇒ ["1.11 Selector Mechanism, Adjusting", page 85](#).
- Install the plenum chamber cover. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Bulkhead; Plenum Chamber Cover, Removing and Installing .





- Tighten the left and right lock carrier bolts -arrows- for the carrier. Refer to ➤ Body Exterior; Rep. Gr. 50 ; Lock Carrier; Lock Carrier, Removing and Installing .
- Install the battery tray and the battery. Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .
- Clip the engine cover mount in the right engine lifting eye. Refer to ➤ Rep. Gr. 10 ; Assembly Mounts; Supporting the Engine in Installation Position .
- Install the engine cover and air filter. Refer to ➤ Rep. Gr. 10 ; Engine Cover; Engine Cover Removing and Installing or ➤ Rep. Gr. 24 ; Air Filter; Air Filter Housing Removing and Installing .
- Connect the battery and follow the steps after connecting the battery. Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .



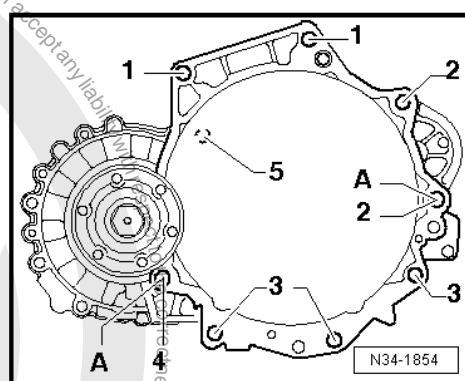
Note

- ◆ After installing the transmission perform the corrosion protection measures on the subframe.
- ◆ If when removing the flange shaft, the transmission fluid leaks out, drain and fill the transmission fluid for the installed transmission and flange shaft. Refer to ➤ ["6 Transmission Fluid, Checking and Filling", page 176](#) .
- Install the left front wheel housing liner. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Overview - Front Wheel Housing Liner .
- Install the noise insulation. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Overview - Noise Insulation .
- Install the wheel. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 44 ; Wheels, Tires

3.6.2 Tightening Specifications

Transmission to engine

Item	Bolt	Quantity	Nm
1	M 12 x 50	2	80
2	◆ M 12 x 150 Also starter to transmission	2	80
3	M 10 x 55	3	40
4	M 12 x 60	1	80
5	M6 x 8 ◆ Small flywheel cover plate (Not present on all)	1	10



Item -A- alignment sleeves for centering

Component	Nm
Bracket for lower starter plug wires	20
Ground wire to upper starter bolt	20



3.7 Transmission, Removing, Jetta 2011 with Turbo Diesel Engine

Special tools and workshop equipment required

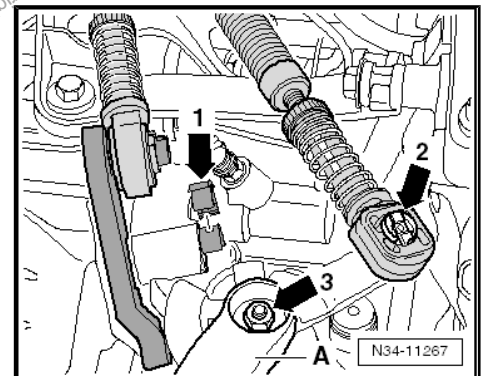
- ◆ Engine Support Bridge - 10-222A-
- ◆ Transmission Support - 3282-
- ◆ Support Elements for transmission (determine when mounting the Mounting Plate on the Transmission Support)
- ◆ Engine and Gearbox Jack - VAS6931-
- ◆ Tensioning Strap - T10038-
- ◆ Engine Support - Basic Set - T40091-
- ◆ Engine Support - Supplement Kit - T40093A-
- ◆ Spindle from the Seal Installer - Driver Set - 3066- or bolt M8 x 105
- ◆ Transmission Support - Pins 29 - 3282/29-
- ◆ Transmission Support - Mounting Plate 39 - 3282/39-
- ◆ Seal Installer - One-Piece Seal - T10148-
- ◆ Grease for Clutch Disc Shaft Splines - G 000 100-
- ◆ Allocate the grease for gearshift mechanism. Refer to the Parts Catalog.
- Determine whether a coded radio is installed. If so, obtain the anti-theft code.
- Disconnect the battery ground cable with the ignition switched off. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Remove the engine cover. Refer to ⇒ Rep. Gr. 15 ; Cylinder Head; Engine Cover, Removing and Installing .
- Remove the complete air filter housing. Refer to ⇒ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing .
- Remove the battery and the battery tray. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .
- Remove the cable retainer from the selector cable. Refer to ⇒ ["1.8 Plastic Relay Lever", page 77](#) .
- Remove the clip -arrow 1- and then remove the relay lever and the cable retainer.



Note

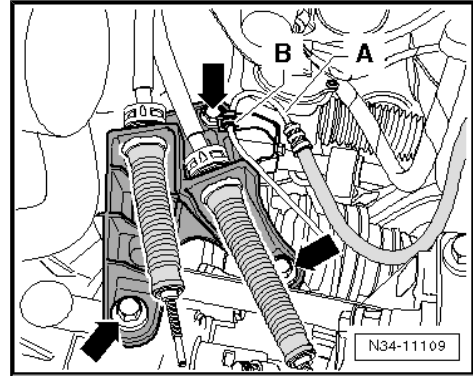
The relay lever is secured by a notch on some vehicles. Refer to ⇒ ["1.8 Plastic Relay Lever", page 77](#) .

- Remove the shift cable lock washer -arrow 2- from the selector lever -A-.
- Remove the shift cable from the pins.
- Remove the nut -arrow 3- and then remove the transmission shift lever -A-.





- Remove the cable bracket from the transmission -arrows-.
- Tie up the shift cable and the selector cable.
- Remove the bracket -B- from the transmission and pull it off the hose/line assembly -A-.



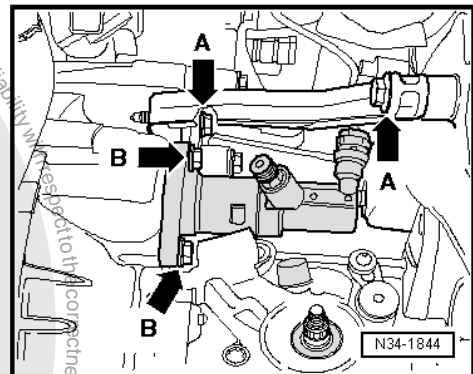
- Remove the transmission support -arrows A-.
- Remove clutch slave cylinder -arrow B- and lay aside, secure with wire, do not open line system.



Caution

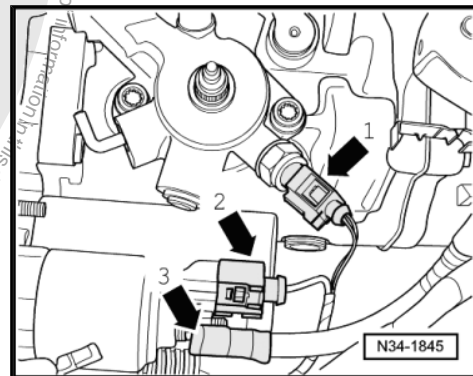
The clutch slave cylinder could be damaged.

- ◆ *If the clutch slave cylinder is removed from the transmission with pipe/hose line still connected, do not press the clutch pedal.*

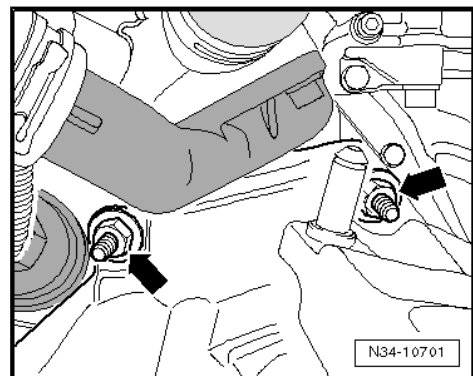


Disconnect the connector -arrow 1- from the Back-Up Lamp Switch - F4- .

- Remove the connector -arrow 2- and wire -arrow 3- from the starter.
- Disconnect the ground cable from the upper engine/transmission bolt.
- Remove the upper bolt from the starter.

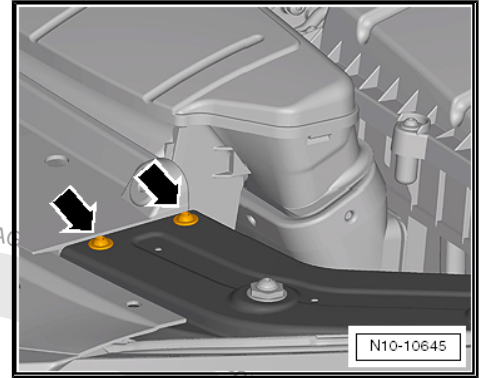


- Remove the upper engine/transmission connecting bolts -arrows-.
- Remove the plenum chamber cover. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Plenum Chamber Cover; Plenum Chamber Cover, Removing and Installing .

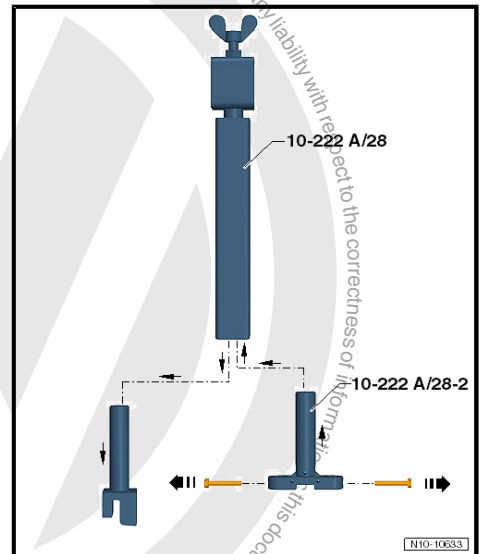




- Remove the bolts -arrows- for the left and right lock carrier retaining brackets.



- Remove the lower mounts on the Engine Support Bridge - Engine Support 28 - 10-222A/28- and replace them with the Engine Support Bridge - Engine Support 28-2 - 10-222A/28-2 .
- Remove the bolts -arrows- for securing the engine support bridge on the lock carrier from the Engine Support Bridge - Engine Support 28-2 - 10-222A/28-2 .
- Use the bolts in the Engine Support Bridge - Engine Support 28-2 - 10-222A/28-2- for attaching the Engine Support Bridge - Engine Support 28 - 10-222A/28- . Not the bolts for the retaining bracket.



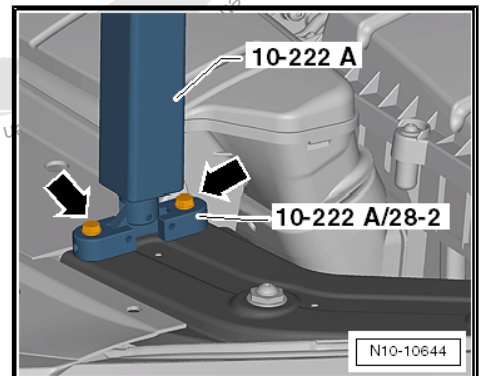
- Install the Engine Support Bridge - Engine Support 28 - 10-222A/28- and tighten the bolts to 8 Nm -arrows-.



Caution

A second technician is needed to mount the Engine Support Bridge on the vehicle to prevent the Engine Support Bridge from tipping.

- If there are hose and cable connections located near the engine lifting eyes for the Engine Support Bridge - 10-222A- , these must now be removed.



Install the Engine Support Bridge - 10-222A- as shown.

The Engine Support Bridge - Engine Support 31 - 10-222A/31-1- and -10-222A/31-2- are placed on the suspension strut tower.



1 - Engine Support Bridge - Engine Support 31 - Adapter 2 - 10-222A/31-2-

2 - Engine Support - Basic Set - Moveable Joint - T40091/3-

3 - Engine Support Bridge - Engine Support 31 - Adapter 1 - 10-222A/31-1-

4 - Engine Support - Basic Set - Rail with Holes - T40091/2-

5 - Engine Support - Supplement Kit - Movable Joint - T40093/4-

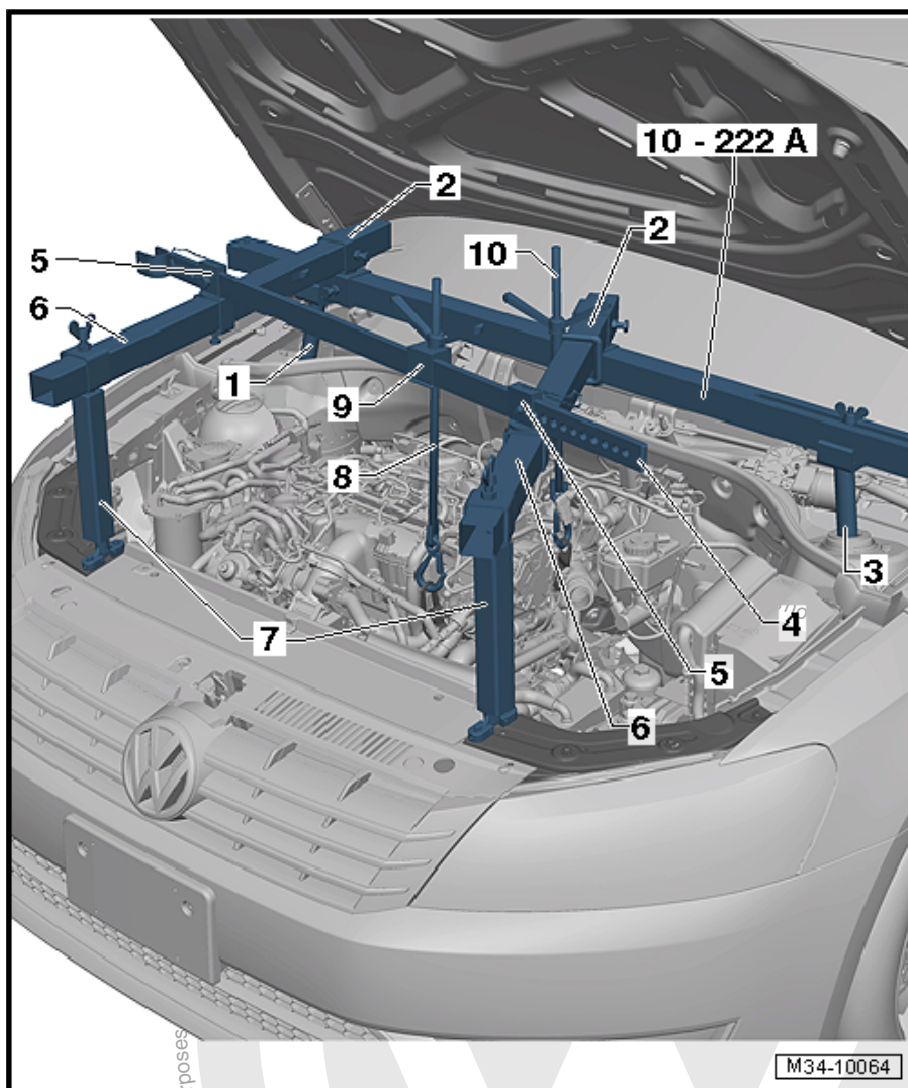
6 - Engine Support - Basic Set - Square Pipe - T40091/1-

7 - Engine Support Bridge - Engine Support 28 - 10-222A/28- with Engine Support Bridge - Engine Support 28-2 - 10-222A/28-2-

8 - Engine Support Bridge - Spindle - 10-222A/11-

9 - Engine Support - Supplement Kit - Mount 5 - T40093/5-

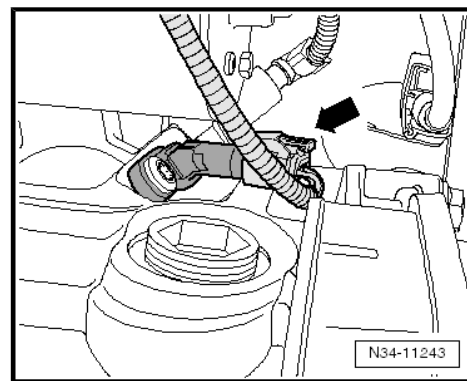
10 - Engine Support - Bracket w/Spindle and Hook - 10-222A/10-



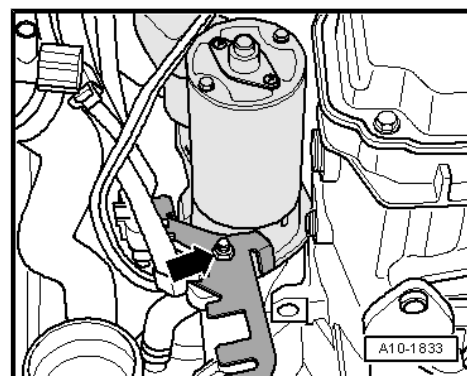
- Install the locking pins into the Engine Support - Basic Set - Rail with Holes - T40091/2- -4- and secure it with the cotter pins.
- Tighten all the threaded connections on the Engine Support Bridge hand-tight. While doing so, adjust the height of the Engine Support Bridge parallel over the Engine Support Bridge - Engine Support 28 - 10-222A/28- .
- Pretension the engine/transmission sub-assembly using the spindles, but do not lift it.
- Loosen the left front wheel bolts.
- Raise the vehicle and remove the left front wheel.
- Remove the noise insulation. Refer to ➤ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Remove the left front wheel housing liner. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Front Wheel Housing Liner, Removing and Installing .



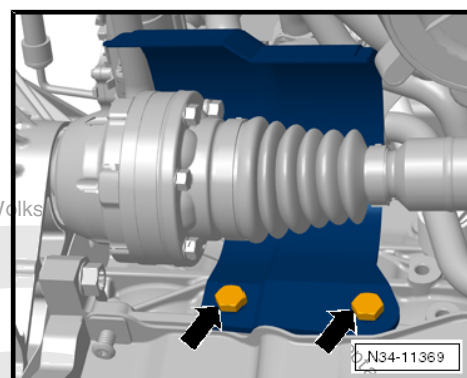
- Transmission on vehicles with Start/Stop System: disconnect the connector -arrow- from the Transmission Neutral Position Sensor - G701- .



- Remove bracket from lower starter bolt, if equipped -arrow-.
- Remove the starter. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Starter .

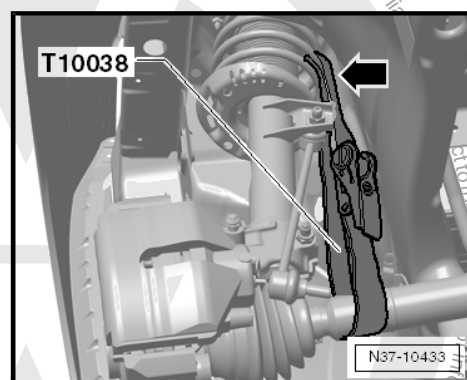


- Remove the right driveshaft heat shield, if equipped -arrows-.
- Remove the left and right drive axles from the transmission flange shafts. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Removing and Installing .



- Tie up the left and right driveshafts with a cable tie or with Tensioning Strap - T10038- .

Do not damage the surface of the shafts.



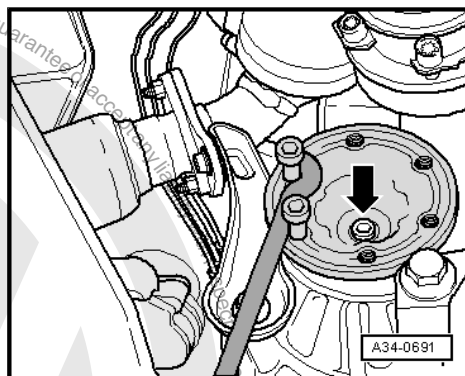


- Install two bolts in the flange and counterhold the flange shaft with the pry lever to remove the right flange shaft bolt -arrow-.



Note

- ♦ Check the seal for leaks before removing the flange shaft. If the seal has leaks, replace it when installing. Refer to ⇒ "1.5 Seal and Sleeve, One-Piece Right Flange Shaft Seal and Sleeve, Replacing", page 280.
 - ♦ If necessary, tie the driveshaft up just far enough so that it is possible to remove the transmission flange shaft.
 - ♦ Remove the right drive axle. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40; Drive Axles, Removing and Installing.
- Remove the flange shaft.

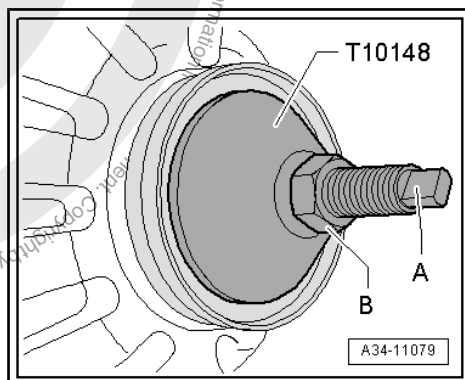


- Attach the spindle -A- from the Seal Installer - Driver Set - 3066- into the threaded piece on the differential.
- Insert the Seal Installer - One-Piece Seal - T10148- and secure with the nut -B-.

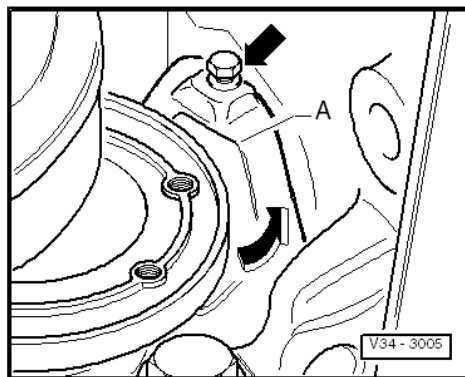


Note

- ♦ The Seal Installer - One-Piece Seal - T10148- should protect the right seal and the transmission from dirt.
- ♦ A M8 x 105 mm bolt may be installed by hand into the differential threaded piece instead of a spindle -A-.



- Remove the small cover plate -A- for the flywheel (if equipped) behind the right flange shaft -arrow-.



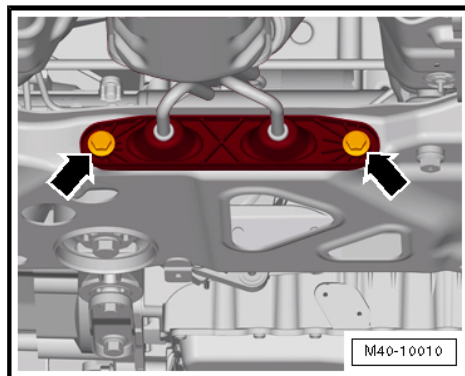
- Separate the exhaust system at the double clamp and remove the front exhaust pipe bracket from the subframe -arrows-. Refer to ⇒ Rep. Gr. 26; Exhaust System.



Caution

Risk of damaging the decoupling element.

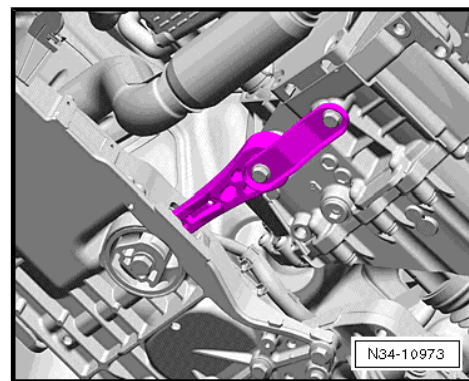
- ♦ Do not bend the decoupling element more than 10°.
- ♦ Do not load the decoupling element.
- ♦ Do not damage the wire mesh on the decoupling element.



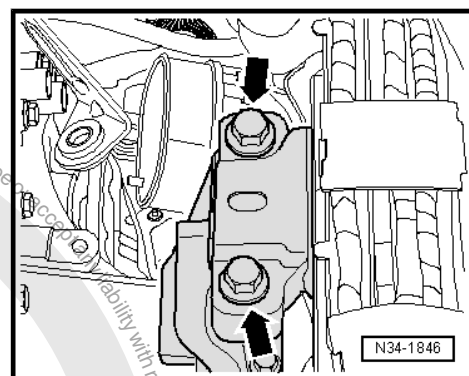
- Tie up the front exhaust pipe.



- Remove the pendulum support.



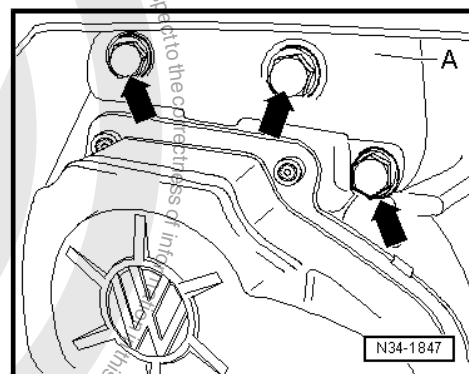
- Remove the left assembly mounting hex bolts -arrows- from the transmission mounting.
- Bring engine/transmission assembly into angled position by lowering it via the spindles on the Engine Support Bridge 10-222A- .



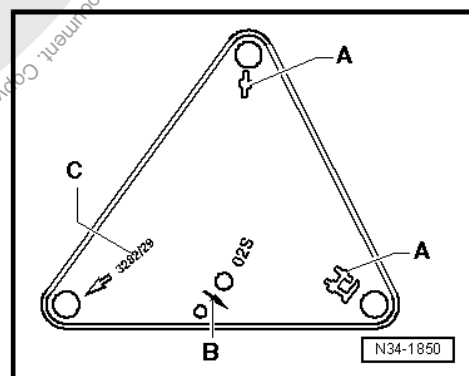
- The bolts -arrows- for the transmission bracket -A- must be accessible.
- Remove the transmission bracket -A- -arrows-.

Align the Transmission Support - 3282- with the Transmission Support Mounting Plate 39 - 3282/39- in order to remove the "0A4" transmission.

- Insert the Transmission Support - 3282- into the Engine and Gearbox Jack - VAS6931- .
- Align the arms of the Transmission Support so that they match up with the holes in the Adjustment Plate .

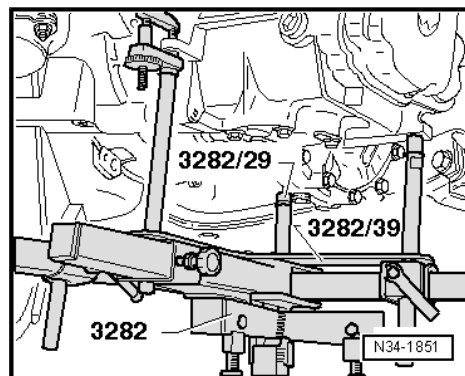


- Install the Mounting Elements -A and C-, on the Adjusting Plate , as illustrated.
- Position the Engine and Transmission Jack under the vehicle. The arrow symbol -B- on the Adjusting Plate points in the direction of travel.

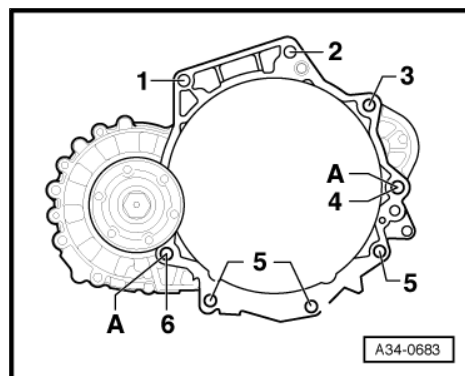




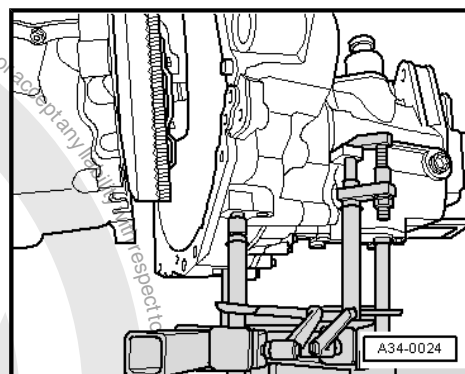
- Align the Adjusting Plate so that it is parallel to the transmission and secure the safety support to the transmission.
- Install the Transmission Support - Pins 29 - 3282/29- into the rear hole for the pendulum support bolt on the transmission.
- Support the transmission by lifting it from below using the Engine and Gearbox Jack - VAS6931- .



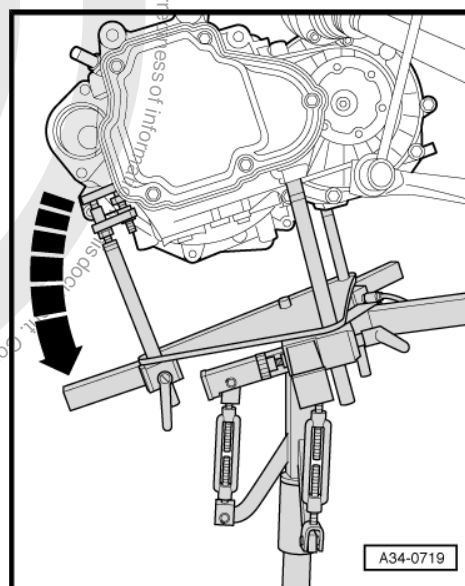
- Remove remaining transmission to engine connecting bolts -5 and 6-.



- Remove the transmission from the alignment bushings and carefully move it toward the subframe.

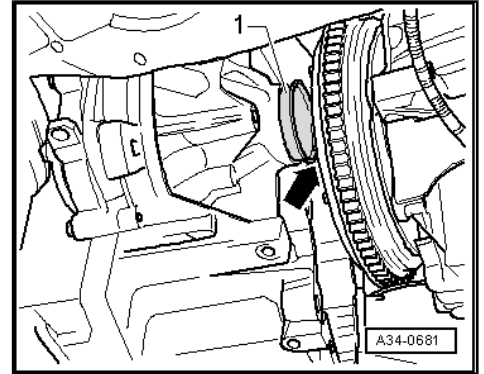


- Tip the transmission over the adjusting spindle for the Transmission Support - 3282- in the direction of the -arrow-.
- Carefully push the engine forward slightly with a second technician.

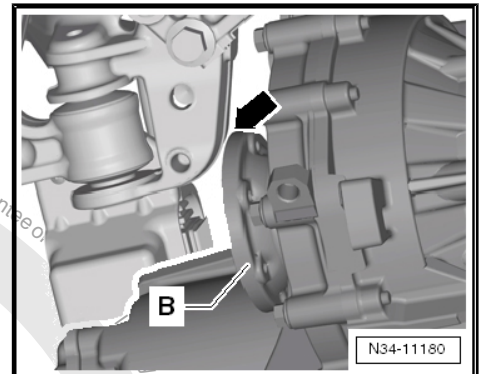




- Carefully lower the transmission with the Engine and Gearbox Jack - VAS6931- , while making sure that the right flange shaft seal -1- is guided through without any damage to the pressure plate -arrow-.



- Guide the left flange shaft -B- past the subframe -arrow- as shown. Move the Engine and Gearbox Jack with the transmission to the front.
- When lowering, change the transmission position using the spindles on the Transmission Support - 3282- .

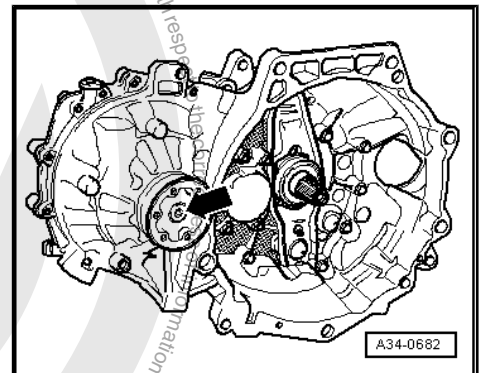


Note

Pay attention to all of the lines when lowering the transmission.

- Reinsert the right flange shaft if necessary and tighten the bolt -arrow- to 25 Nm.

Transmission, transporting. Refer to
⇒ ["5 Transmission, Transporting", page 175](#) .



3.8 Transmission, Installing, Jetta 2011 with Turbo Diesel Engine

⇒ ["3.8.1 Tightening Specifications", page 172](#)



Note

Refer to "Transmission, Removing" to get a list of the special tools needed. Refer to
⇒ ["3.7 Transmission, Removing, Jetta 2011 with Turbo Diesel Engine", page 157](#) .

Pay attention to the following list for the subject - "Transmission Fluid, Checking and Filling"

"Transmission Fluid, Checking and Filling"				
Transmission		»No«	»Yes«	»Yes«
	Original Part	X		
	no oil outlet	X		



"Transmission Fluid, Checking and Filling"

	Was completely disassembled		X before installation ⇒ <u>Item 3 (page 203)</u> -item 3- transmission fluid capacity. Refer to ⇒ <u>"2.3 Codes, Transmission Allocation and Capacities", page 3</u>	
	Was partially disassembled • (the transmission housing and the clutch housing were not separated from each other)			X after installation. Refer to ⇒ <u>"6 Transmission Fluid, Checking and Filling", page 176</u> .

- Clean any locking compound residue from all threaded holes using a tap.
- Always replace self-locking bolts and nuts.
- Make sure the alignment sleeves for centering the engine/transmission are installed inside the cylinder block. Install them if necessary.

If the alignment sleeves are missing, it will be difficult to shift, there will be clutch problems and the transmission may make noises (loose rattling).

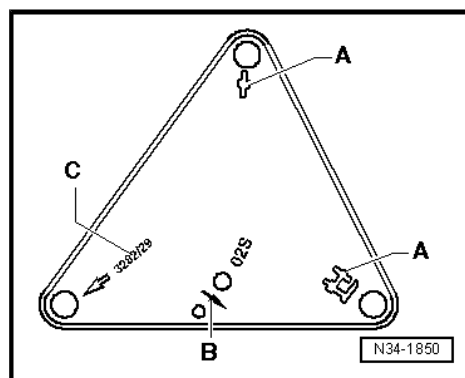
- Make sure the intermediate plate fits correctly on the engine.
- Clean the driveshaft splines and grease lightly with Grease For Clutch Disc Shaft Splines - G 000 100- .

It must be possible to slide the clutch plate back and forth on the input shaft.

- Check the clutch release bearing for wear and replace if necessary.

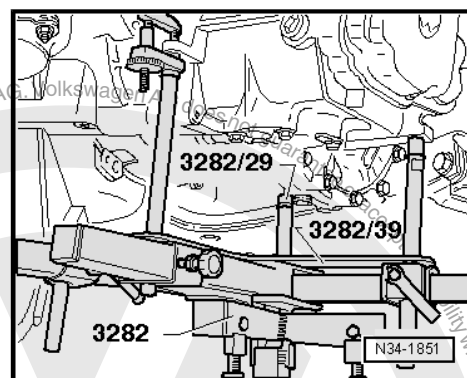
Align the Transmission Support - 3282- with the Transmission Support - Mounting Plate 39 - 3282/39- in order to install the "0A4" transmission.

- Align the arms of the Transmission Support so that they match up with the holes in the Adjustment Plate .
- Install the Mounting Elements -A and C- (Transmission Support - Pins 29 - 3282/29-) on the adjusting plate as illustrated.
- Place the transmission on the Engine and Gearbox Jack .
- Align the Adjustment Plate so that it is parallel to the transmission.





- Install the Transmission Support - Mounting Plate 29 - 3282/29- into the rear hole in the transmission for the pendulum support bolt.
- Position the Engine and Gearbox Jack under the vehicle. The -arrow symbol B- on the adjusting plate points in direction of travel.

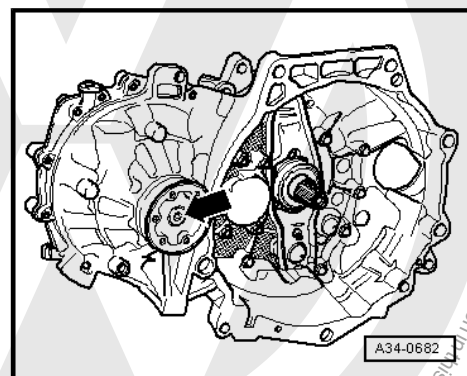


- Remove from a new transmission or replacement transmission right flange shaft -arrow-.



Note

Check the seal for leaks before removing the flange shaft. If the seal has leaks, replace it when installing. Refer to ⇒ "1.5 Seal and Sleeve, One-Piece Right Flange Shaft Seal and Sleeve, Replacing", page 280.

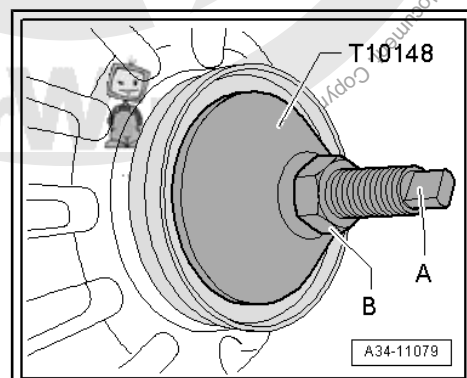


- Attach the spindle -A- for the Seal Installer - Driver Set - 3066- into the threaded piece on the differential.
- Insert the Seal Installer - One-Piece Seal - T10148- and secure with the nut -B-.

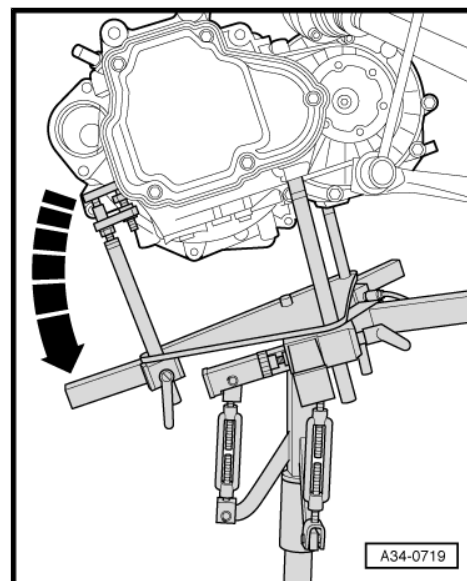


Note

- ♦ The Seal Installer - One-Piece Seal - T10148- should protect the right seal and the transmission from dirt.
- ♦ A M8 x 105 mm bolt may be installed by hand into the differential threaded piece instead of a spindle -A-.

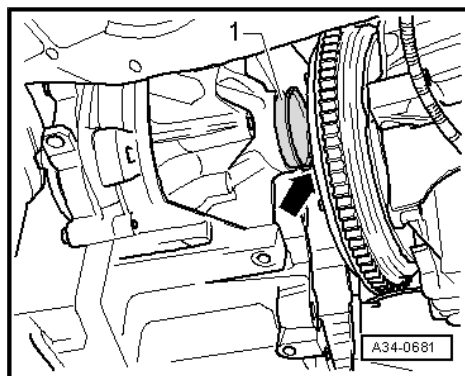


- Tip the transmission over the adjusting spindle for the Transmission Support - 3282- in the direction of the -arrow-.
- Carefully push the engine forward slightly with a second technician.

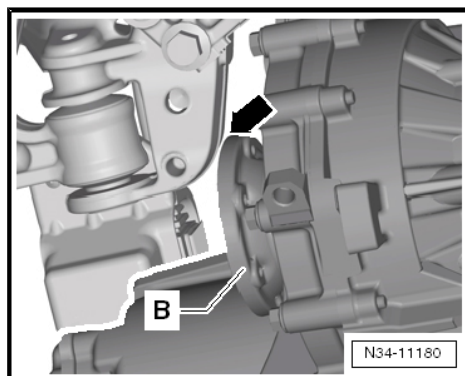




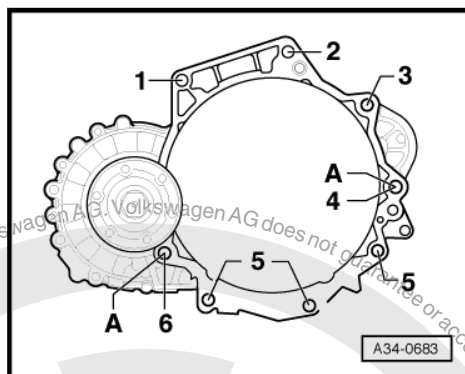
- Carefully lift the transmission with the Engine and Gearbox Jack - VAS6931- , while making sure that the seal -1- is guided through without any damage to the pressure plate -arrow-.



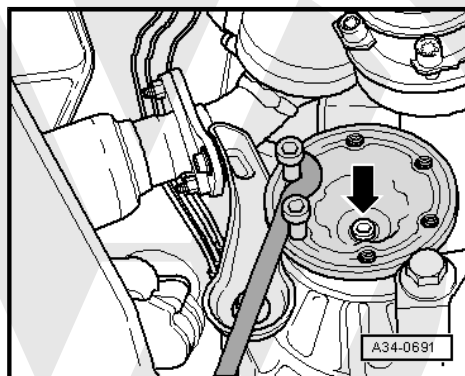
- Guide the left flange shaft -B- past the subframe bracket -arrow- as illustrated.
- Align the transmission with the engine and install it.



- Install the lower bolts -5 and 6- for the engine on the transmission and tighten them to the tightening specification. Refer to ⇒ ["3.8.1 Tightening Specifications", page 172](#) .

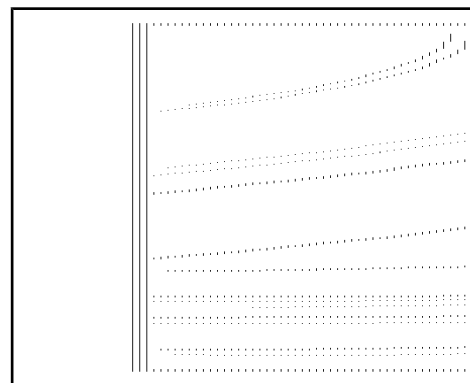


- Reinsert the right flange shaft and tighten the bolt -arrow- to the tightening specification -item 12- ⇒ [Item 12 \(page 287\)](#) .
- After the transmission is attached to the engine, remove the Engine and Gearbox Jack from the transmission.

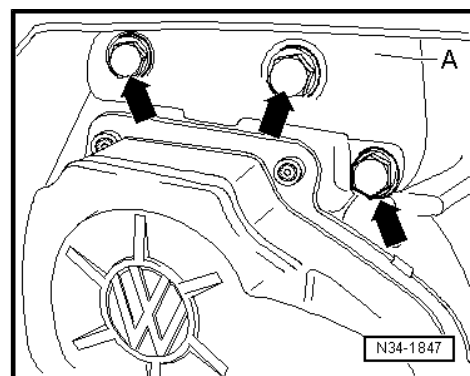




- Install small cover plate, if equipped, behind right flange shaft -A- -arrows-.
- Install the upper engine/transmission connecting bolts and tighten to the tightening specification. Refer to ➤ [“3.8.1 Tightening Specifications”, page 172](#) .



- Attach the bracket -A- with the new bolts to the transmission -arrows- and tighten them to the tightening specification. Refer to ➤ [“4.1 Overview - Subframe Mount”, page 173](#) .



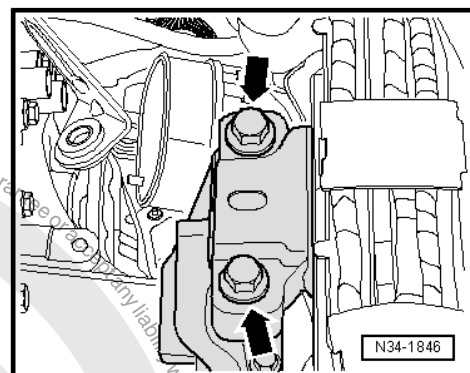
- Align the engine/transmission via the spindles from the Engine Support Bridge - 10-222A- in the installation position.



Caution

There is a risk of damaging the threads in transmission bracket by inserting bolts at an angle.

- ◆ *Before installing bolts -arrows-, transmission bracket and transmission mount support arm must be absolutely parallel to each other. If necessary, lift the back of the transmission using the Engine and Gearbox Jack .*



Note

Install the engine/transmission mount free of tension. Refer to ➤ Rep. Gr. 10 ; Engine, Removing and Installing .

- Install new bolts -arrows- of left assembly mounting into transmission mount and tighten to tightening specification. Refer to ➤ [“4.1 Overview - Subframe Mount”, page 173](#) .



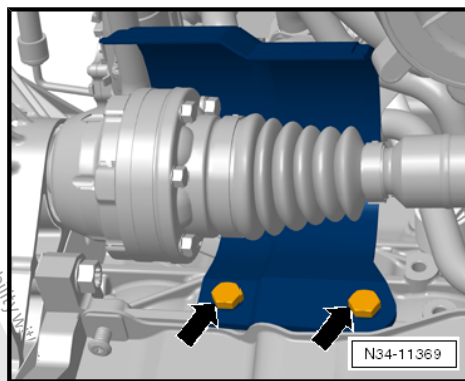
WARNING

Only remove Engine Support Bridge - 10-222A- when the left and right subframe mount bolts are tightened to the tightening specification.

- Attach the drive axles to the transmission. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Removing and Installing .

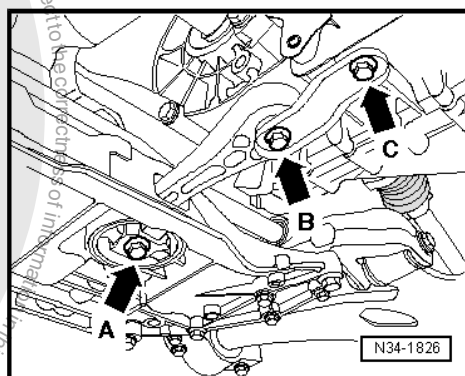


- If equipped install the drive axle heat shield -arrows-. Refer to ➔ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Overview and Servicing; Drive Axle Heat Shield .

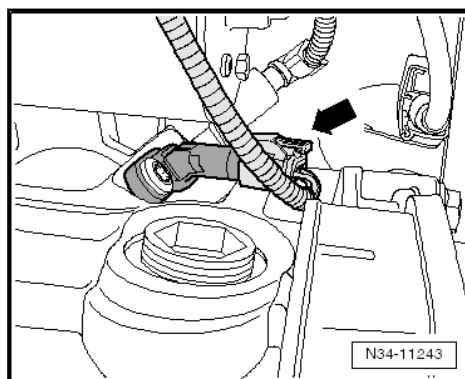


Install pendulum support with new bolts -arrows A, B and C-. Refer to ➔ Suspension, Wheels, Steering; Rep. Gr. 40 ; Sub-frame; Overview - Subframe .

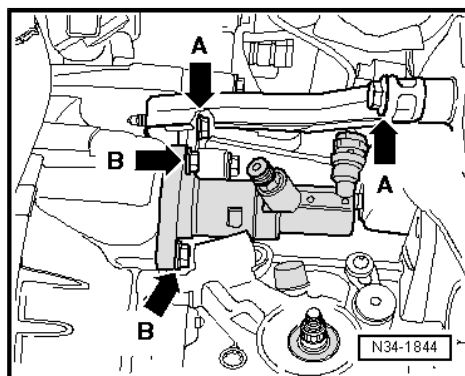
- Assemble the exhaust system and then attach the exhaust system bracket it to the subframe. Refer to ➔ Rep. Gr. 26 ; Exhaust System .



- Transmission on vehicles with Start/Stop System: connect the connector -arrow- to the Transmission Neutral Position Sensor - G701- .

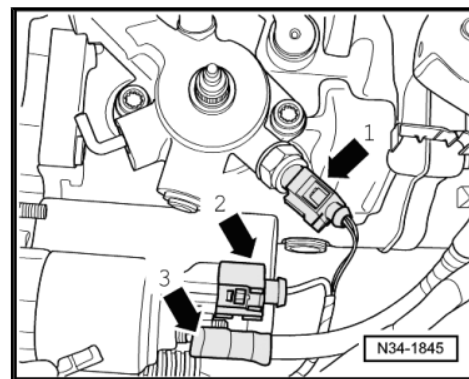


- Install the clutch slave cylinder and tighten the bolts to the specification -item 15- ➔ [Item 15 \(page 39\)](#) , -arrows B-.
- Attach the transmission support -arrows A- and tighten it to the tightening specification. Refer to ➔ ["4.1 Overview - Subframe Mount", page 173](#) .

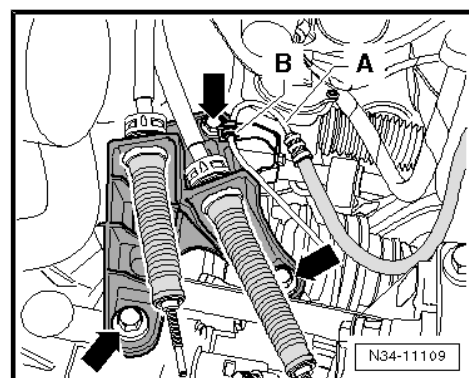




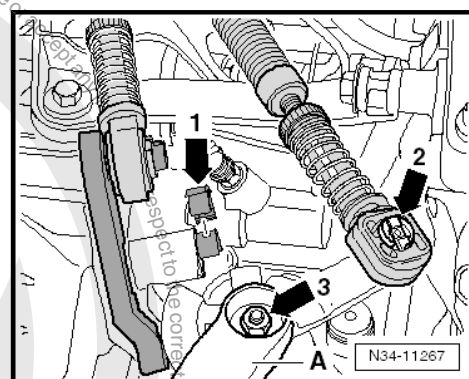
- Connect the connector -1- to the Back-Up Lamp Switch - F4- .
- Install the starter, connect the connector -arrow 2- and attach the wire -arrow 3-. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Starter .
- Attach the ground cable to the upper engine/transmission connecting bolt.



- Attach the bracket -B- to the transmission.
- Press the hose/line assembly -A- into the bracket -B- on the transmission.
- Attach the cable mounting bracket to the transmission and tighten the bolts -arrows- to the tightening specification -item 6- ⇒ [Item 6 \(page 74\)](#) .



- Install the gearshift lever -A-.
- Tighten the nut -arrow 3- to the tightening specification -item 18- ⇒ [Item 18 \(page 76\)](#) .
- Grease the relay lever before installation. Refer to ⇒ ["1.8 Plastic Relay Lever", page 77](#) .
- Allocate the grease for gearshift mechanism. Refer to the Parts Catalog.
- Insert the relay lever together with the cable retainer and secure them with the clip -arrow 1-.
- Coat the pin on the gearshift lever with a small amount of grease -A-.
- Install the shift cable on the gearshift lever -A- and secure it with new lock washer -arrow 2-.
- The clip -arrow 1- secures the relay lever.
- Make sure the clips locks securely.



Note

The relay lever is secured by a notch on some vehicles. Refer to ⇒ ["1.8 Plastic Relay Lever", page 77](#) .

- Connect the selector cable to the cable retainer.
- Adjust the gearshift mechanism. Refer to ⇒ ["1.11 Selector Mechanism, Adjusting", page 85](#) .
- Install the plenum chamber cover. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Plenum Chamber Cover; Plenum Chamber Cover, Removing and Installing .

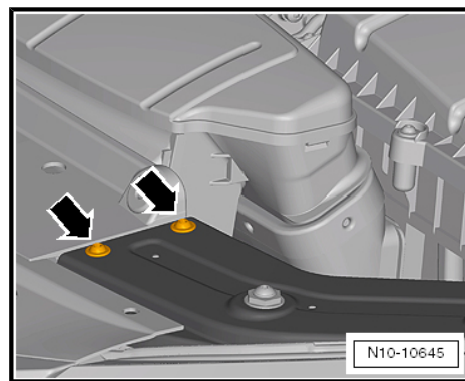


- Install the bolts -arrows- for the left and right lock carrier retaining brackets to the tightening specification. Refer to ➤ Body Exterior; Rep. Gr. 50 ; Lock Carrier; Lock Carrier - Attachments .



Note

*If when removing the flange shaft, the transmission fluid leaks out, drain and fill the transmission fluid for the installed transmission and flange shaft. Refer to
➤ "6 Transmission Fluid, Checking and Filling", page 176 .*

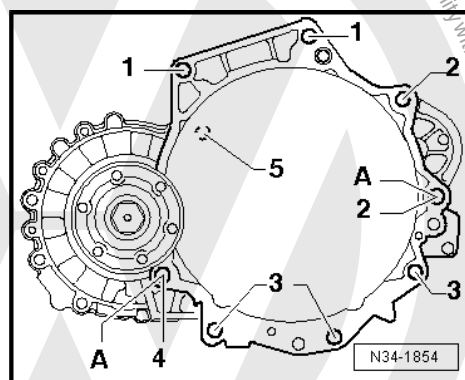


- Install the battery tray and the battery. Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .
- Install the air filter. Refer to ➤ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing .
- Install the engine cover. Refer to ➤ Rep. Gr. 15 ; Cylinder Head; Engine Cover, Removing and Installing .
- Connect the battery and follow the procedure regarding what to do after connecting a battery. Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Install the left front wheel housing liner. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Front Wheel Housing Liner, Removing and Installing .
- Install the noise insulation. Refer to ➤ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Install the wheel. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 44 ; Wheel Installation Tightening Specifications .

3.8.1 Tightening Specifications

Transmission to engine

Item	Bolt	Quantity	Nm
1	M 12 x 50	2	80
2	M 12 x 150 ♦ Also starter to transmission	2	80
3	M10 x 50	3	40
4	M 12 x 60	1	80
5	M6 x 8 ♦ Small flywheel cover plate	1	10
Not present on all			



-A- alignment sleeves for centering

Component	Nm
Bracket for lower starter plug wires	20
Ground cable to engine/transmission bolt	20



4 Subframe Mount

⇒ [“4.1 Overview - Subframe Mount”, page 173](#)

4.1 Overview - Subframe Mount

1 - Bolt

- ☐ 20 Nm +90°
- ☐ Replace after removing
- ☐ Transmission support to transmission bracket and transmission
- ☐ Tightening sequence. Refer to
⇒ [Fig. “Transmission Support to Transmission Bracket and Transmission”](#), page 174

2 - Transmission Support

- ☐ To the transmission bracket and transmission

3 - Engine Mount with Engine Support

- ☐ Refer to ⇒ Rep. Gr. 10 ; Subframe Mount .

4 - Bolt

- ☐ Pendulum support to subframe
- ☐ Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Subframe; Overview - Subframe .

5 - Pendulum Support

- ☐ Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Subframe; Overview - Subframe .

6 - Bolt

- ☐ Pendulum support to transmission
- ☐ Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Subframe; Overview - Subframe .

7 - Bolt

- ☐ Pendulum support to transmission
- ☐ Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Subframe; Overview - Subframe .

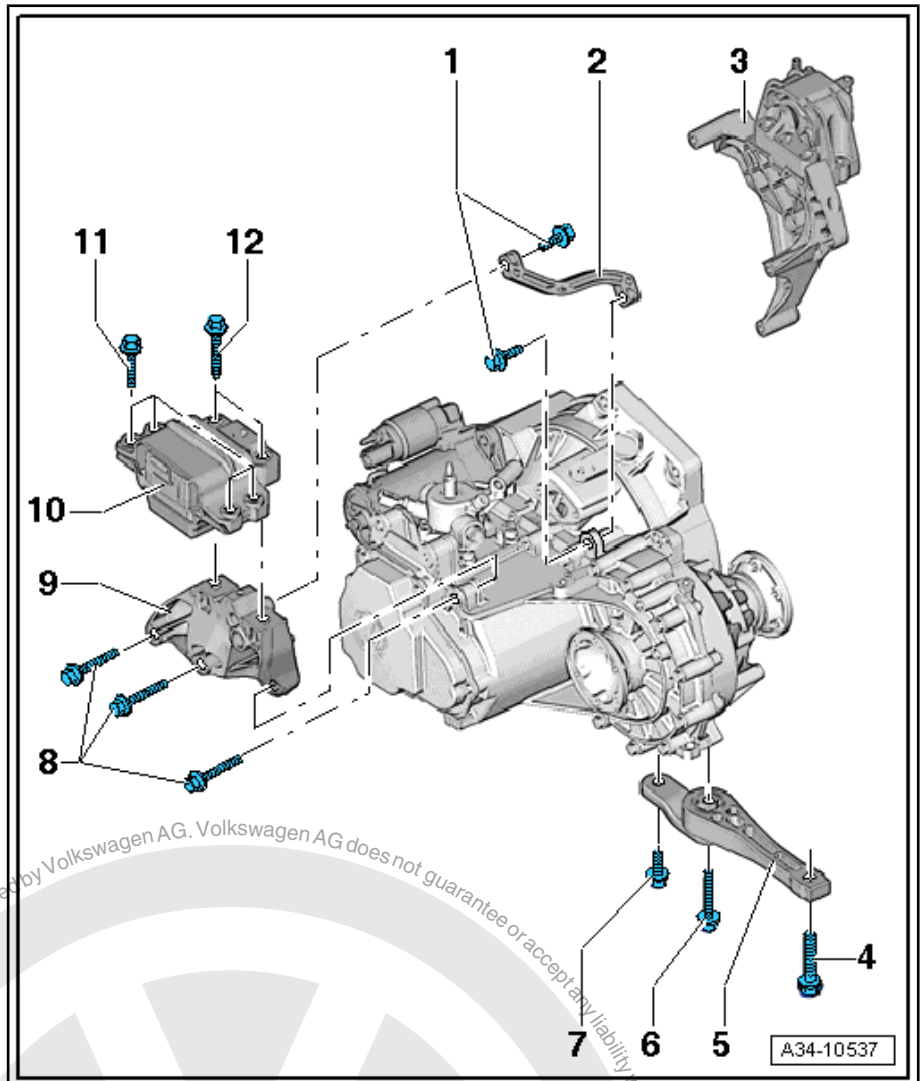
8 - Bolt

- ☐ 40 Nm +90°
- ☐ Tightening sequence ⇒ [Fig. “Transmission Bracket -A- to Transmission.”](#), page 174
- ☐ Replace after removing
- ☐ Transmission bracket to transmission.

9 - Transmission Bracket

10 - Transmission Mount

- ☐ Checking the adjustment. Refer to ⇒ Rep. Gr. 10 ; Subframe Mount .





- ❑ Adjusting. Refer to ⇒ Rep. Gr. 10 ; Subframe Mount .

11 - Bolt

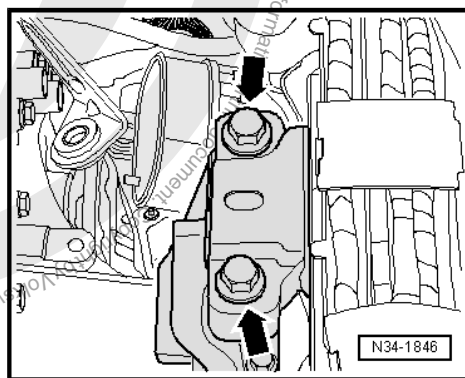
- ❑ Transmission mount to chassis
- ❑ Refer to ⇒ Rep. Gr. 10 ; Subframe Mount .

12 - Bolt

- ❑ 60 Nm +90°
- ❑ Tightening sequence. Refer to
⇒ [Fig. "Attaching the Transmission Mount to the Transmission Bracket" , page 174](#)
- ❑ Replace after removing
- ❑ Transmission mount to transmission bracket

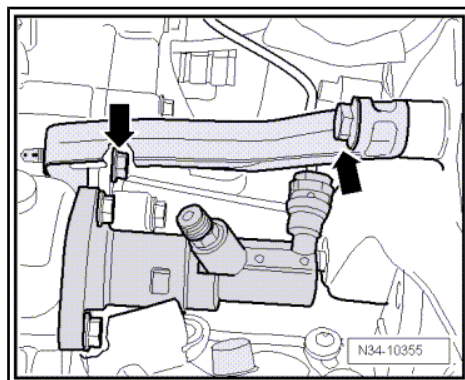
Attaching the Transmission Mount to the Transmission Bracket

- Replace the bolts -arrows-.
- Tighten all bolts hand-tight.
- Tighten the bolt to the tightening specification.



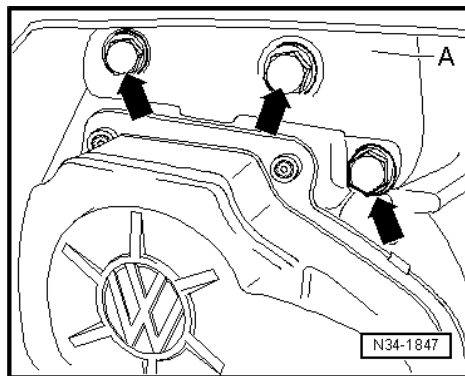
Transmission Support to Transmission Bracket and Transmission

- Replace the bolts -arrows-.
- First tighten both bolts hand tight.
- Tighten the bolt to the tightening specification.



Transmission Bracket -A- to Transmission.

- Replace the bolts -arrows-.
- Tighten all bolts hand-tight.
- Tighten the bolt to the tightening specification.

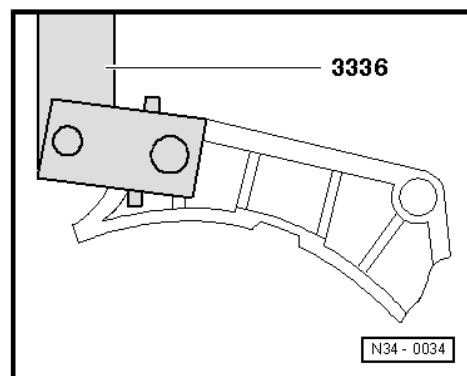




5 Transmission, Transporting

Special tools and workshop equipment required

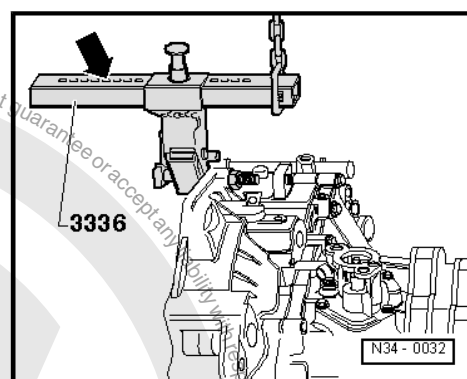
- ◆ Transmission Support Jig - 3336-
- ◆ Shop Crane - VAS6100-
- Attach the Transmission Support Jig - 3336- to the clutch housing.



- Move the support arm on the sliding bar using the locking bolt -arrow-.

Number of visible holes = 5.

- Lift the transmission using the Shop Crane - VAS6100- and the Transmission Support Jig - 3336- .
- Set the transmission down, for example, into the transport container.





6 Transmission Fluid, Checking and Filling

⇒ "6.1 Preparing", page 176

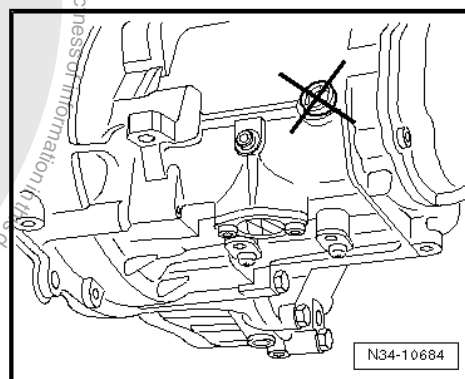
⇒ "6.2 Transmission Fluid, Draining", page 177

⇒ "6.3 Transmission Fluid, Filling", page 177

Special tools and workshop equipment required

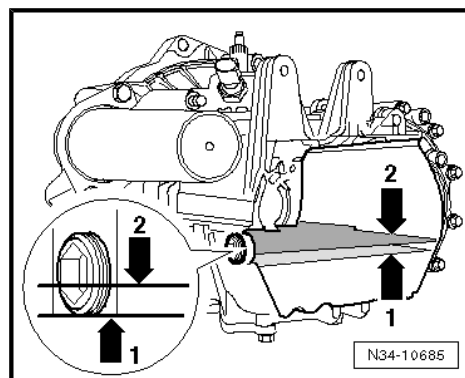
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Hose (approximately 600 mm long, outside diameter 10 mm) with commercially available funnel.

It is not possible to check the transmission fluid level by removing oil filler plug.



Due to the angle of the engine/transmission assembly, the lower edge of the filler hole -arrow 1- is located below the oil level -arrow 2-.

The transmission fluid level in transmission can only be checked when the transmission fluid has been drained completely and then filled again:



6.1 Preparing

Transmission fluid specification. Refer to the Parts Catalog .

- Remove the air filter housing. Refer to ⇒ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing or ⇒ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .

Clean the transmission.



Caution

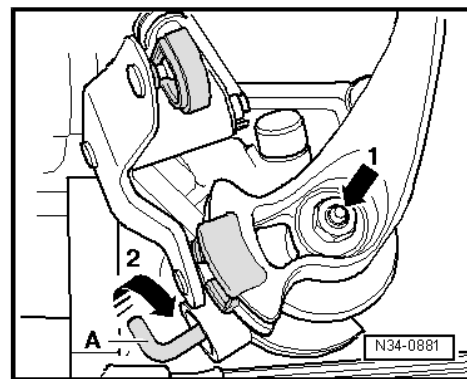
To drain gear oil, journal for shift forks in transmission must be removed.

To avoid that the position of the shift forks is changed, for example by involuntarily operating shift mechanism, shift rod must be secured.



Secure the gearshift shaft as follows:

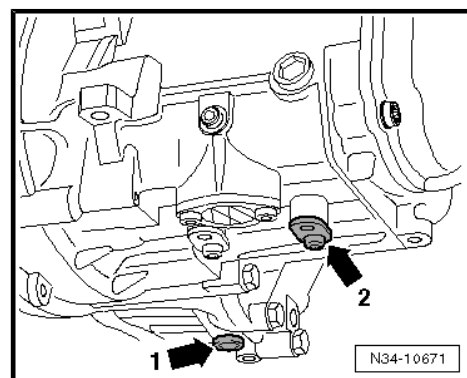
- Push the gearshift shaft down in direction of -arrow 1-.
- While press the gearshift shaft down, rotate the bracket -A- in direction of -arrow 2- upward and simultaneously press it in until it engages in the gearshift shaft.



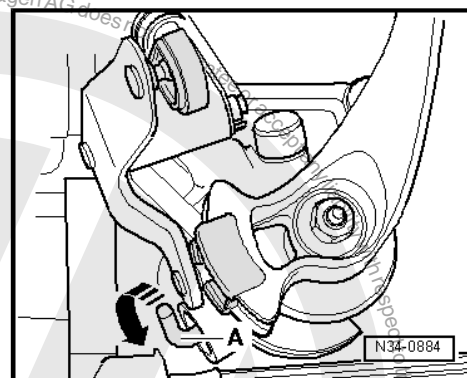
6.2 Transmission Fluid, Draining

Use a clean container that holds 3 liters with a scale printed on it to catch the transmission fluid.

- The gearshift shaft is secured. Refer to [Fig. "Secure the gearshift shaft as follows:"](#), page 177 .
- Remove the drain plug -arrow 1- and the pivot pin -arrow 2- and drain the transmission fluid.
- Install the pivot pin -arrow 2- with a new O-ring. Refer to -item 5- [⇒ Item 5 \(page 183\)](#) .
- Install the drain plug -arrow 1- -item 17- [⇒ Item 17 \(page 204\)](#) .



- Rotate the bracket -A- back into its starting position direction of -arrow- so that the gearshift shaft moves freely.



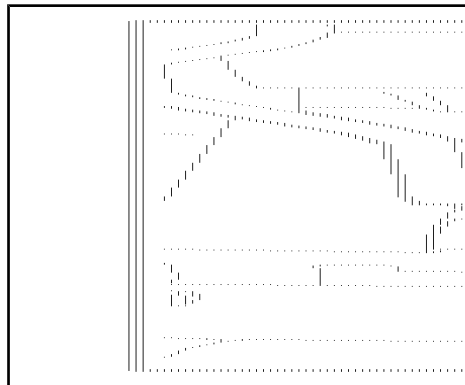
6.3 Transmission Fluid, Filling

Amount of transmission fluid in the container, add to 1.7 liters

Transmission fluid specification. Refer to the Parts Catalog.



- Remove the Back-Up Lamp Switch - F4- -arrow-.
- Hose (approximately 600 mm long, outside diameter 10 mm) with commercially available funnel.
- Insert the hose into the locating bore of the Back-Up Lamp Switch - F4- (second technician) and fill the transmission fluid.
- Reinstall the Back-Up Lamp Switch - F4- -arrow- -item 2- ➔ [Item 2 \(page 208\)](#) .
- Make sure the gearshift mechanism works correctly. Refer to ➔ ["1.11.1 Function", page 87](#) .
- Install the air filter housing. Refer to ➔ Rep. Gr. 23 ; Diesel Direct Injection System; Air Filter Housing, Removing and Installing or ➔ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .
- Install the noise insulation. Refer to ➔ Body Exterior; Rep. Gr. 50 ; Noise Insulation .





7 Transmission, Disassembling and Assembling

⇒ [“7.1 Transmission Overview”, page 179](#)

⇒ [“7.2 Overview”, page 180](#)

⇒ [“7.3 Cover for Transmission Housing and 5th Gear, Removing and Installing”, page 181](#)

⇒ [“7.4 Transmission Housing and Shift Mechanism, Removing and Installing”, page 183](#)

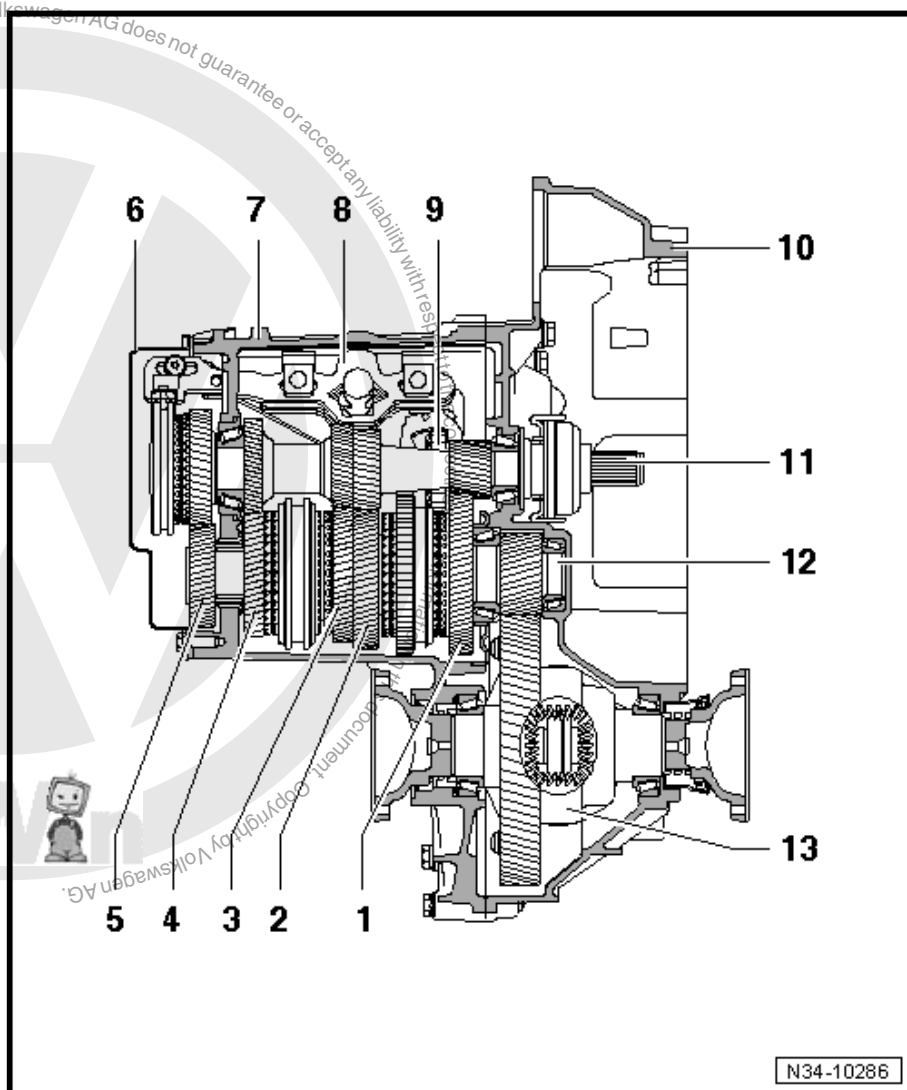
⇒ [“7.5 Input Shaft, Output Shaft, Differential and Shift Rods, Removing and Installing”, page 184](#)

⇒ [“7.6 Assembly Sequence, Transmission Housing Cover and 5th Gear, Removing and Installing”, page 185](#)

⇒ [“7.7 Transmission, Assembly Sequence, Disassembling and Assembling”, page 189](#)

7.1 Transmission Overview

- 1 - 1st Gear
- 2 - 2nd Gear
- 3 - 3rd Gear
- 4 - 4th Gear
- 5 - 5th Gear
- 6 - Transmission Housing Cover
- 7 - Transmission Housing
- 8 - Selector Mechanism
□ (Shift forks)
- 9 - Reverse Drive Gear
- 10 - Clutch Housing
- 11 - Input Shaft
- 12 - Output Shaft
- 13 - Differential





7.2 Overview

Assembly Sequence - Transmission Housing Cover and 5th Gear, Removing and Installing. Refer to

⇒ ["7.6 Assembly Sequence, Transmission Housing Cover and 5th Gear, Removing and Installing", page 185](#) .

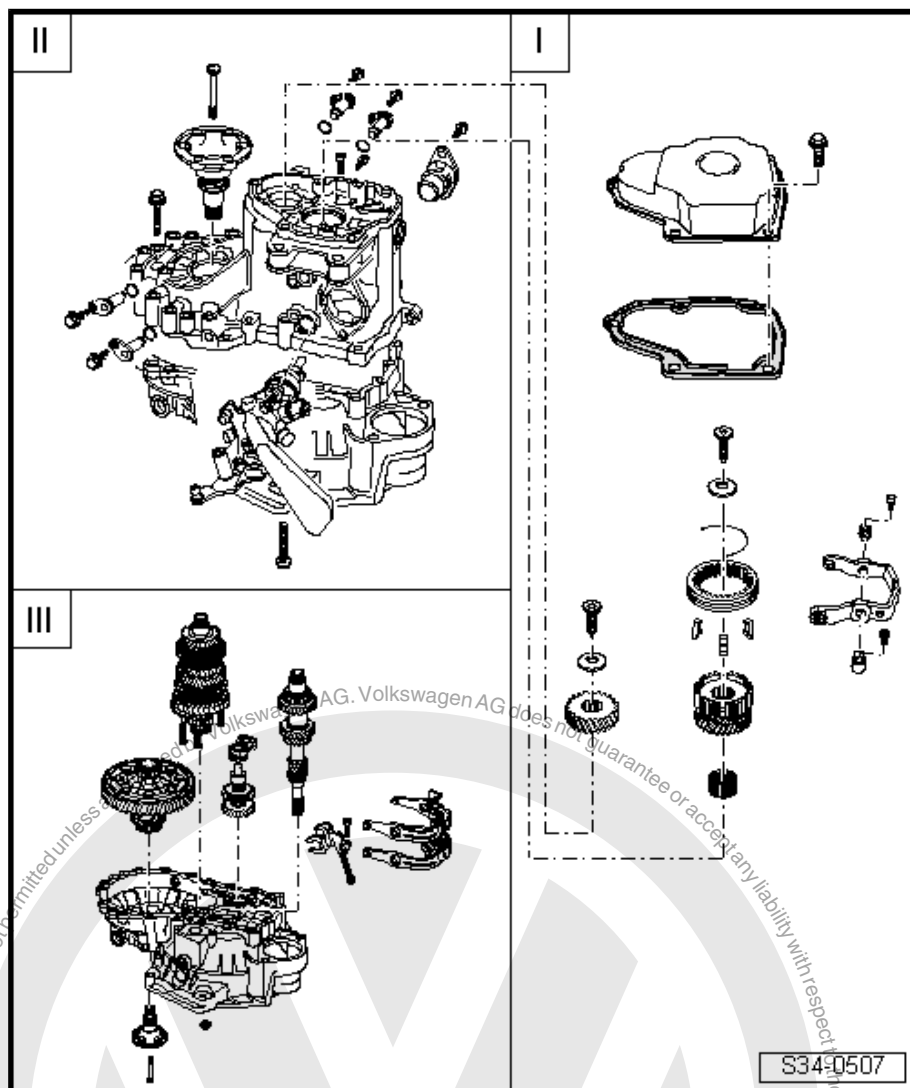
Assembly Sequence - Transmission, Disassembling and Assembling. Refer to

⇒ ["7.7 Transmission, Assembly Sequence, Disassembling and Assembling", page 189](#) .

I - Cover for Transmission Housing and 5th Gear, Removing and Installing. Refer to
⇒ ["7.3 Cover for Transmission Housing and 5th Gear, Removing and Installing", page 181](#)

II - Transmission Housing and Gearshift Mechanism, Removing and Installing. Refer to
⇒ ["7.4 Transmission Housing and Shift Mechanism, Removing and Installing", page 183](#)

III - Input Shaft, Output Shaft, Differential and Shift Rods, Removing and Installing. Refer to
⇒ ["7.5 Input Shaft, Output Shaft, Differential and Shift Rods, Removing and Installing", page 184](#) .





7.3 Cover for Transmission Housing and 5th Gear, Removing and Installing

1 - Bolt

- ☐ 18 Nm
- ☐ Cover to transmission housing

2 - Transmission Housing Cover

- ☐ With magnet from 11/2010. Refer to
⇒ [Fig. "Transmission Housing Cover with a Magnet -A- ", page 182](#)



Note

- ◆ If transmission housing cover is removed and installed with transmission installed, drain and fill gear oil. Refer to
⇒ ["6 Transmission Fluid, Checking and Filling", page 176](#).
- ◆ Please note that a small amount of oil escapes when removing cover.

3 - Seal

4 - Bolt

- ☐ 80 Nm plus 90° additional turn
- ☐ Always replace.
- ☐ Hold with the adapter on the plate spring bolt head in position
- ☐ Remove locking compound residue from the threaded holes for the synchronizer hub and 5th gear drive gear bolts using a thread tap. Otherwise, there is the danger that the screws could shear off.

5 - Plate Spring

- ☐ Installing. Refer to
⇒ [Fig. "Installed Position of Plate Springs for 5th Gear Synchronizer Hub and Gear Securing Bolts", page 200](#).

6 - Cylinder Bolt

- ☐ 25 Nm
- ☐ For the pivot pin to the transmission housing

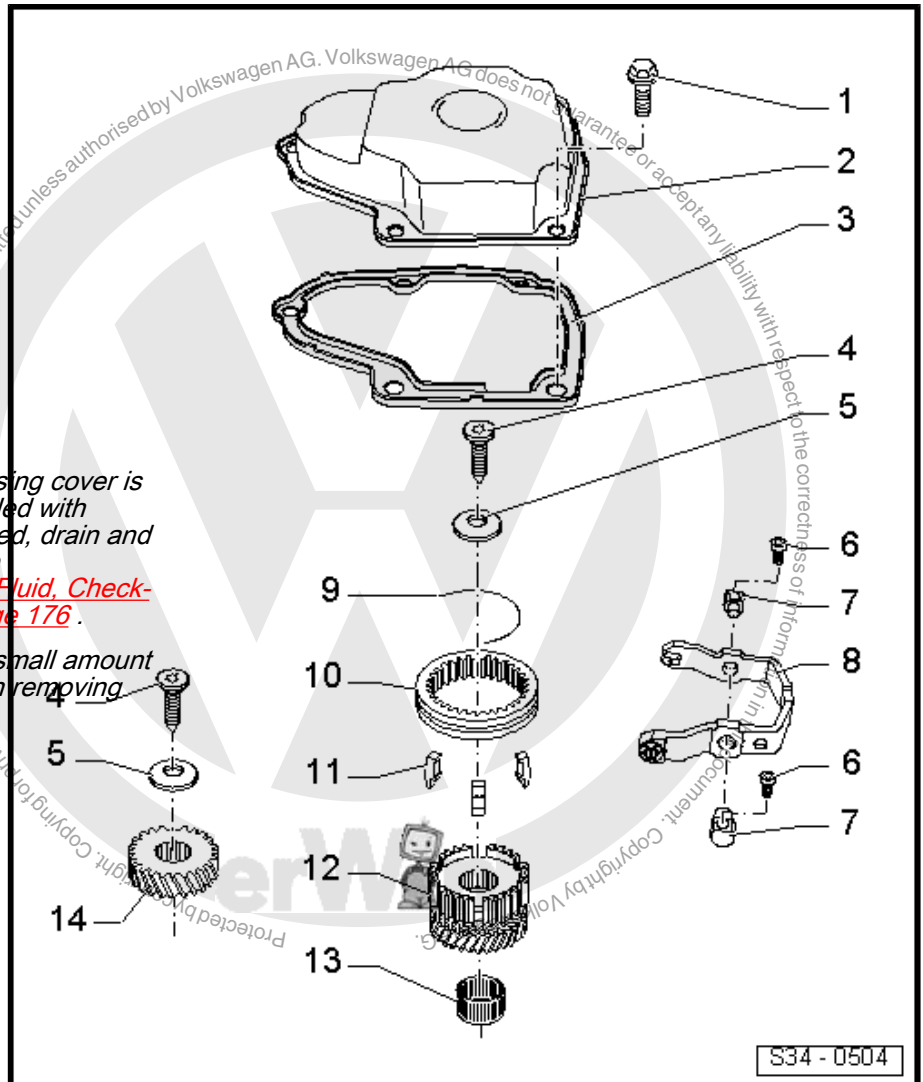
7 - Pivot Pin

8 - 5th Gear Shift Fork

- ☐ Disassembling and Assembling. Refer to
⇒ ["10 Shift Forks, Disassembling and Assembling", page 210](#).
- ☐ Adjusting. Refer to ⇒ [Fig. "Adjusting the 5th Gear", page 201](#).

9 - Spring

- ☐ Offset version
- ☐ Installing. Refer to ⇒ [Fig. "Installation of Offset Springs -A- ", page 247](#)





10 - 5th Gear Locking Collar

- ☐ Installation position. Refer to
⇒ [Fig. "5th Gear Locking Collar/Synchronizer Hub Assembly", page 247](#) .
- ☐ Adjusting. Refer to ⇒ [Fig. "Adjusting the 5th Gear", page 201](#) .

11 - Locking Pieces

- ☐ Installation position. Refer to ⇒ [Fig. "5th Gear Synchronizing", page 246](#) .
- ☐ Quantity: 3

12 - Synchronizer Hub with Gear Wheel and 5th Gear Synchronizer Ring

- ☐ Remove together with the transmission housing. Refer to
⇒ ["7.7 Transmission, Assembly Sequence, Disassembling and Assembling", page 189](#)
- ☐ Remove individually. Refer to
⇒ ["7.6 Assembly Sequence, Transmission Housing Cover and 5th Gear, Removing and Installing", page 185](#)
- ☐ Disassembling and Assembling. Refer to
⇒ [Fig. "5th Gear Locking Collar/Synchronizer Hub Assembly", page 247](#) .

13 - Needle Bearing

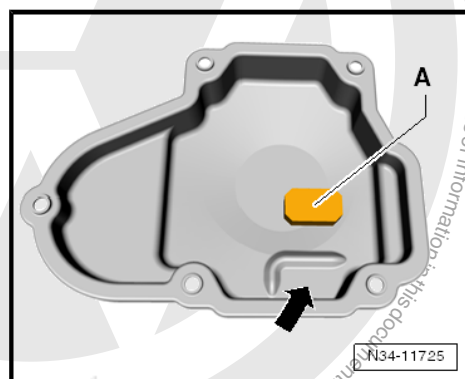
14 - 5th Gear Wheel

- ☐ Remove together with the transmission housing. Refer to
⇒ ["7.7 Transmission, Assembly Sequence, Disassembling and Assembling", page 189](#)
- ☐ Remove individually. Refer to
⇒ ["7.6 Assembly Sequence, Transmission Housing Cover and 5th Gear, Removing and Installing", page 185](#)
- ☐ Installation position. Refer to ⇒ [Fig. "Installed Position, 5th Gear Wheel", page 198](#) .

Transmission Housing Cover with a Magnet -A-

The magnet can be inserted only into a cover with a recess
-arrow-.

The magnet is held in place by the bolt for the 5th gear shift fork
pivot pin when the cover is installed.





7.4 Transmission Housing and Shift Mechanism, Removing and Installing

1 - Bolt

- ☐ 25 Nm

2 - Flange Shaft with Pressure Spring

- ☐ Removing and Installing. Refer to [⇒ "1.2 Left Flange Shaft Seal, Replacing", page 277](#).
- ☐ Assembling. Refer to [⇒ "3 Differential", page 285](#).

3 - Inner TORX® Bolt

- ☐ 25 Nm
- ☐ Always replace.
- ☐ For the reverse shaft support
- ☐ Self-locking

4 - TORX® Socket Bolt

- ☐ 30 Nm
- ☐ Always replace.
- ☐ For the reverse shaft support
- ☐ Self-locking

5 - O-Ring

- ☐ Always replace.

6 - Pivot Pin

7 - Bolt

- ☐ 25 Nm

8 - Bolt

- ☐ 25 Nm

9 - Cap

10 - Internal Multipoint Bolt

- ☐ 25 Nm
- ☐ Always replace.
- ☐ For the reverse shaft support

11 - Bolt

- ☐ 5 Nm

12 - Transmission Neutral Position Sensor - G701-

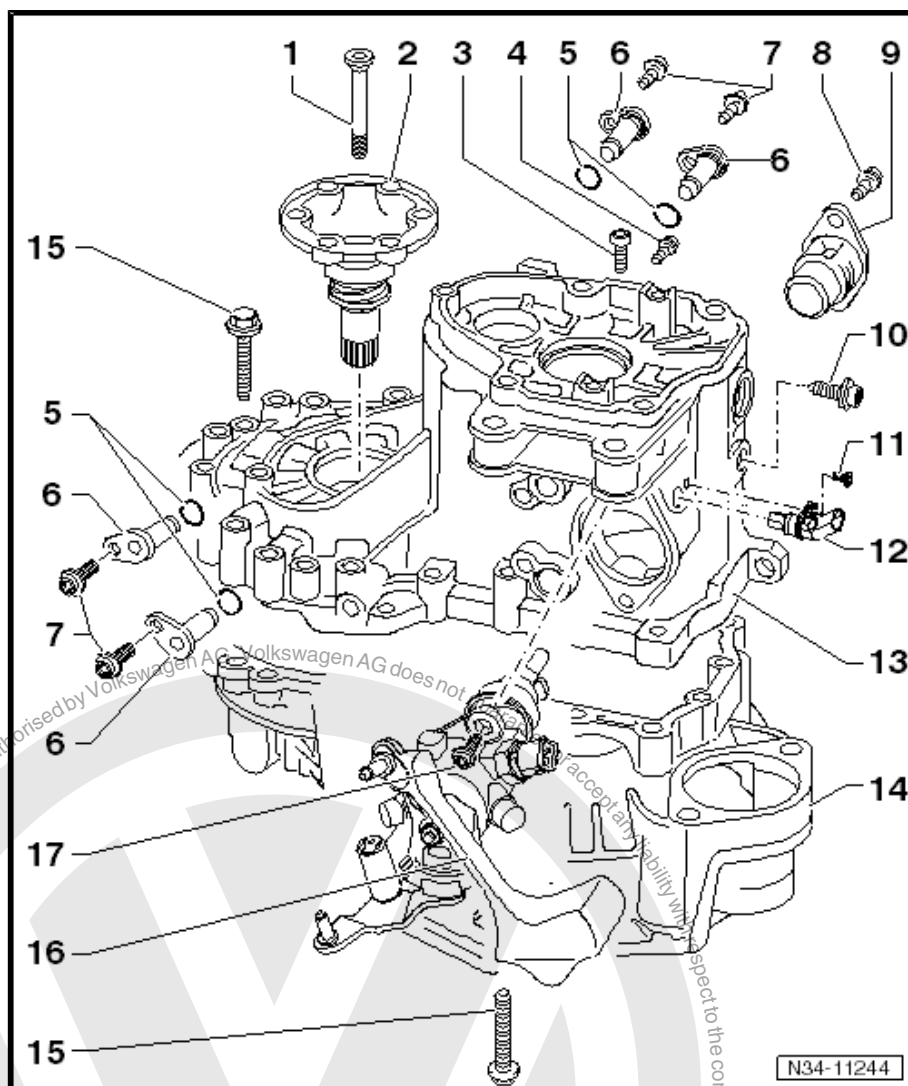
- ☐ For vehicles with the Start/Stop System

13 - Transmission Housing

- ☐ Remove together with 5th gear. Refer to [⇒ "7.7 Transmission, Assembly Sequence, Disassembling and Assembling", page 189](#).
- ☐ Servicing. Refer to [⇒ "8 Transmission Housing and Clutch Housing, Servicing", page 202](#).

14 - Clutch Housing

- ☐ Servicing. Refer to [⇒ "8 Transmission Housing and Clutch Housing, Servicing", page 202](#).





15 - Hex Bolt

- ❑ 25 Nm and 90° additional turn
- ❑ Always replace.

16 - Gearshift Shaft with Gearshift Cover

- ❑ Shift unit
- ❑ Servicing. Refer to ⇒ ["9 Shift Unit, Servicing", page 208](#).

17 - Internal Multipoint Bolt

- ❑ 25 Nm

7.5 Input Shaft, Output Shaft, Differential and Shift Rods, Removing and Installing

1 - Differential

- ❑ Disassembling and Assembling. Refer to ⇒ ["3 Differential", page 285](#).

2 - Seal

- ❑ Always replace.
- ❑ Quantity: 4

3 - Output Shaft

- ❑ Disassembling and Assembling. Refer to ⇒ ["2.1 Output Shaft, Disassembling and Assembling", page 252](#).

4 - Reverse Shaft Support

- ❑ Disassembling and Assembling. Refer to ⇒ ["3 Reverse Shaft", page 267](#).

5 - Reverse Shaft

- ❑ Disassembling and Assembling. Refer to ⇒ ["3 Reverse Shaft", page 267](#).

6 - Input Shaft

- ❑ Disassembling and Assembling. Refer to ⇒ ["1 Input Shaft", page 241](#).

7 - Reverse Gear Shift Fork

- ❑ Disassembling and Assembling. Refer to ⇒ ["10 Shift Forks, Disassembling and Assembling", page 210](#).

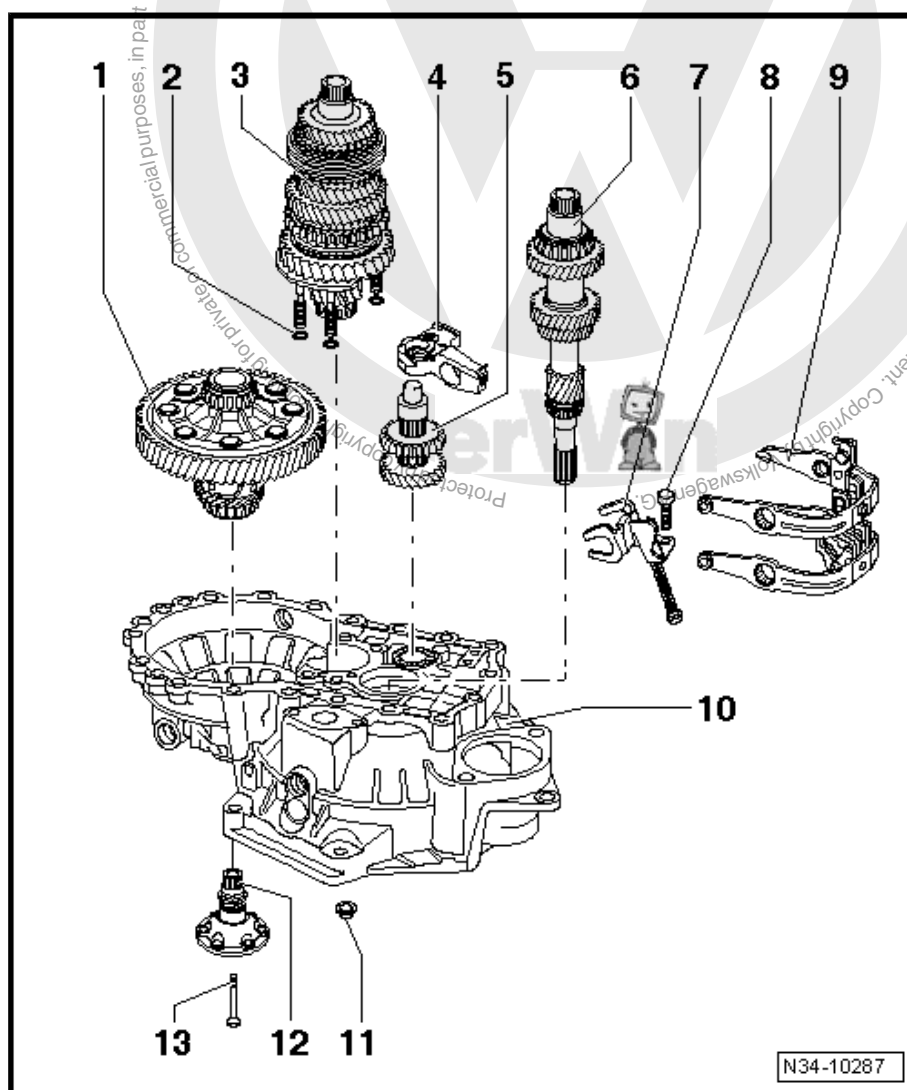
- ❑ Installation position. Refer to ⇒ ["7.7.2 Assembling the Transmission", page 195](#).

8 - Inner TORX® Bolt

- ❑ 25 Nm

9 - Selector Mechanism

- ❑ Shift forks





- ❑ Disassembling and Assembling. Refer to
⇒ ["10 Shift Forks, Disassembling and Assembling", page 210](#) .

10 - Clutch Housing

- ❑ Servicing. Refer to ⇒ ["8 Transmission Housing and Clutch Housing, Servicing", page 202](#) .

11 - Nut

- ❑ 25 Nm and 90° additional turn
- ❑ Always replace.
- ❑ 4 nuts for the bearing mount

12 - Flange Shaft with Pressure Spring

- ❑ Removing and installing. Refer to
⇒ ["1.4 Seal, Two-Piece Right Flange Shaft Seal and Sleeve, Replacing", page 278](#) or
⇒ ["1.5 Seal and Sleeve, One-Piece Right Flange Shaft Seal and Sleeve, Replacing", page 280](#) .
- ❑ Assembling. Refer to ⇒ ["3 Differential", page 285](#) .

13 - Bolt

- ❑ 25 Nm

7.6 Assembly Sequence, Transmission Housing Cover and 5th Gear, Removing and Installing

⇒ ["7.6.1 Transmission Housing Cover and 5th Gear, Removing", page 185](#)

⇒ ["7.6.2 5th Gear and Transmission Housing Cover, Installing", page 189](#)

7.6.1 Transmission Housing Cover and 5th Gear, Removing

Special tools and workshop equipment required

- ◆ Holding Plate - VW309A-
- ◆ Transmission Support - VW353-
- ◆ Bearing/Bushing Installer - Multiple Use - VW295-
- ◆ Bearing Driver - Multiple Use - VW244B-
- ◆ Hot Air Blower - VAG1416-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Bracket - Multiple Use - 30-211A-
- ◆ Bearing Installer - Multiple Use - 32-111-
- ◆ Assembly Tool Kit - Press Piece 2 - T10030/4- from the Hydraulic Press - Bushing Tool Kit - T10030-
- ◆ Press Piece - 37mm - VW416B-
- ◆ Puller - Transmission Gears - T10309-
- ◆ Puller - Two Arm - T10040-
- ◆ With the Puller - Two Arm w/Thrust Piece - T10040/2A-
- ◆ Puller - Two Arm Thrust Piece - T10040/3-
- ◆ Support Bridge - T10323-
- ◆ Rear Wheel Bearing Kit - Piece 7 - 3253/7-
- ◆ Press Piece - Multiple Use - VW433-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-



Note

- ◆ If only 5th has to be removed, follow this procedure:
- ◆ Gear oil does not need to be drained for this procedure. When the transmission housing cover is removed, the transmission must sit with the cover side facing upward.
- ◆ If it is necessary to remove the transmission housing, follow the work procedure: *Transmission, Disassembling and Assembling*. Refer to [⇒ "7.7 Transmission, Assembly Sequence, Disassembling and Assembling", page 189](#).

Perform the following procedure:

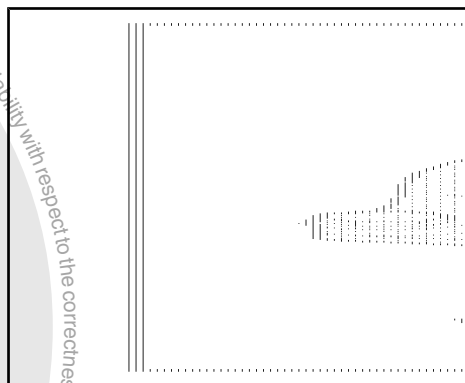
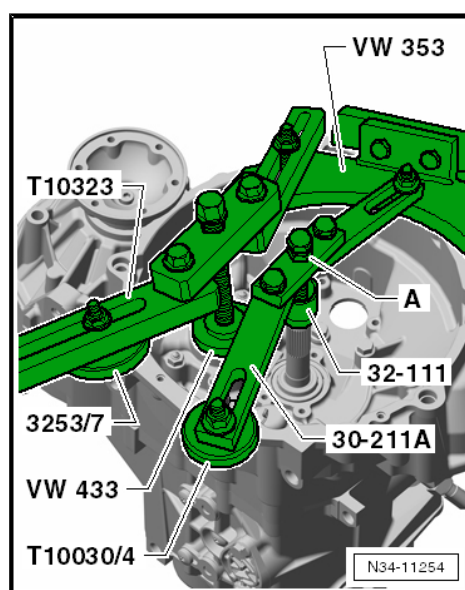
- Remove the clutch release lever and release bearing. Refer to [⇒ "2 Clutch Release Mechanism, Servicing", page 45](#).
- Be careful not to damage the bearing for the input and output shafts when removing and installing 5th gear.
- When securing the transmission to the Transmission Support - VW353-, mount the following tools for support:

Under the Input Shaft:

- ◆ Bracket - Multiple Use - 30-211A-
- ◆ Bearing Installer - Multiple Use - 32-111-
- ◆ Assembly Tool Kit - Press Piece 2 - T10030/4-
- Input shaft may be supported by Bearing Installer - Multiple Use - 32-111- only at a later time.

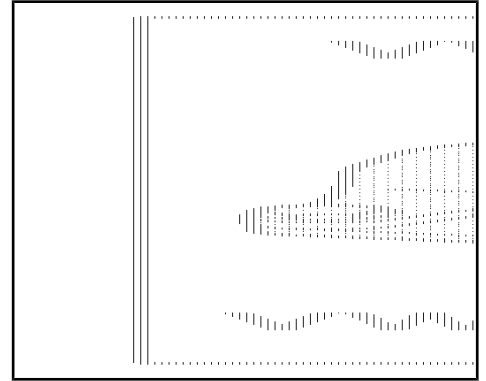
Under the Output Shaft Bracket

- ◆ Support Bridge - T10323-
- ◆ Rear Wheel Bearing Kit - Piece 7 - 3253/7-
- ◆ Press Piece - Multiple Use - VW433-
- Secure the transmission on the Transmission Support - VW353-.



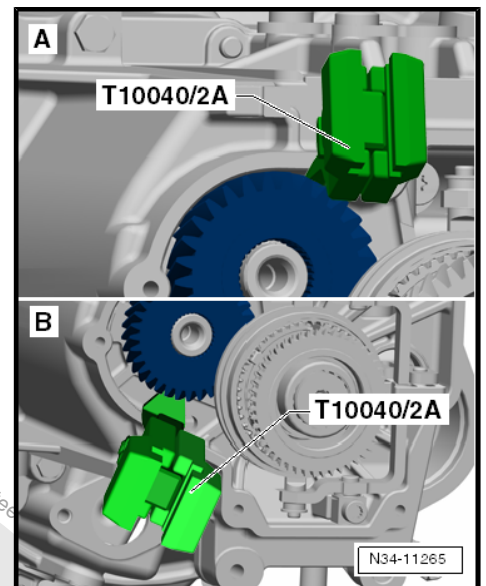


- Remove the transmission housing cover -arrow-.



- Make sure the Puller - Two Arm w/Thrust Piece - T10040/2A- can be installed correctly under the 5th gear wheel.

Puller - Two Arm w/Thrust Piece - T10040/2A- cannot be installed correctly.	
<p>-A- Puller - Two Arm w/Thrust Piece - T10040/2A- prematurely touch the:</p> <ul style="list-style-type: none"> ◆ Transmission housing wall ◆ The ribbing in the transmission housing under the 5th gear wheel 	<p>"Combined" removal of the: "5th gear synchronizer hub", "5th gear wheel" and "transmission housing". Refer to ⇒ "7.7 Transmission, Assembly Sequence, Disassembling and Assembling", page 189 .</p>
<p>The-B- Puller - Two Arm w/Thrust Piece - T10040/2A- touch the ribs in the transmission housing under the 5th gear wheel.</p>	

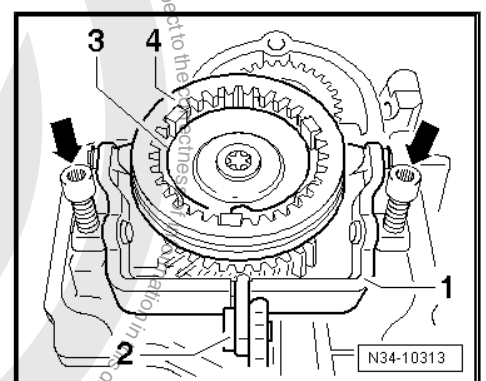


Puller - Two Arm w/Thrust Piece - T10040/2A- can be installed correctly.

The 5th gear can be removed separately. Refer to
⇒ [Fig. "5th Gear, Removing Separately", page 187](#)

5th Gear, Removing Separately

- Cover the openings in the transmission housing with a cloth.
- Move the shift fork -1- into neutral.
- Remove the bolt -2- with the shift jaw for 5th gear.
- Remove both bolts -arrows- for the pivot pin.
- Remove the pivot pin.
- Remove the 5th gear shift fork.
- It is not necessary to remove the spring -3- and the locking collar -4-.





- Engage 5th gear -arrow 1- and 1st gear -arrows 2- and -3- to remove the bolts -A- for the synchronizer hub and for the 5th gear.
- The input shaft and the output shaft are blocked after both gears are engaged. The synchronizer hub and the gear wheel cannot turn. Both bolts can be loosened now.

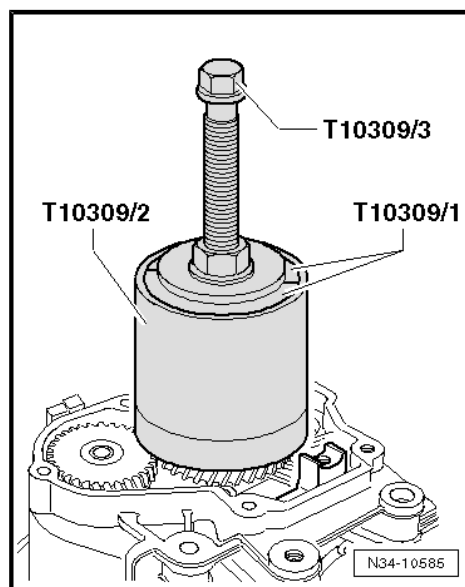
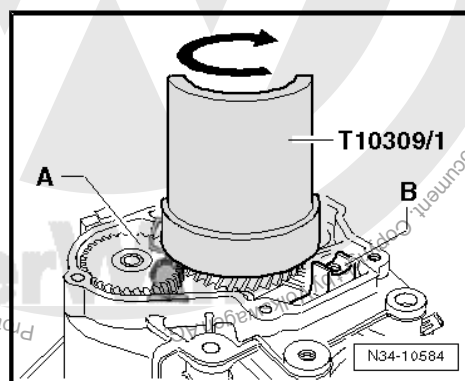
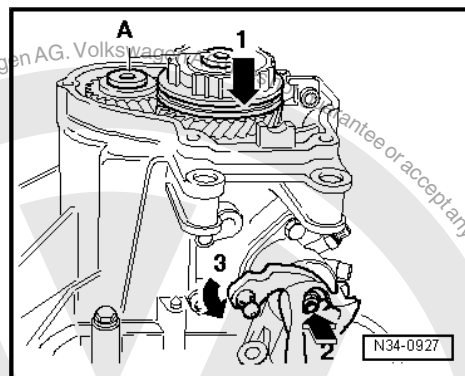


Note

Remove any locking compound residue still in the threaded holes using a thread tap if the shafts are not going to be replaced.

Remove 5th gear synchronizer hub together with locking collar and locking pieces. To do this use the Puller - Transmission Gears - T10309- .

- Insert the Puller - Transmission Gears - Half Shell - T10309/1- between the 5th gear wheel -A- and the mount for 5th gear shift fork -B-.
- The Puller - Transmission Gears - Half Shell - T10309/1- must be placed under the synchronizer ring.
- Press the Puller into the end position, if necessary.
- Rotate the Puller - Transmission Gears - Half Shell - T10309/1- to the opposite side in direction of the -arrow-.
- Install the Puller - Transmission Gears - Threaded Insert - T10309/3- in the Puller - Transmission Gears - Half Shell .
- Install the second Puller - Transmission Gears - Half Shell - T10309/1- and put the Puller - Transmission Gears - Tube - T10309/2- on the tool.
- Check synchronizer hub after pulling for damage.
- Replace the 5th gear synchronizer ring
- Remove 5th gear selector gear with needle bearing.



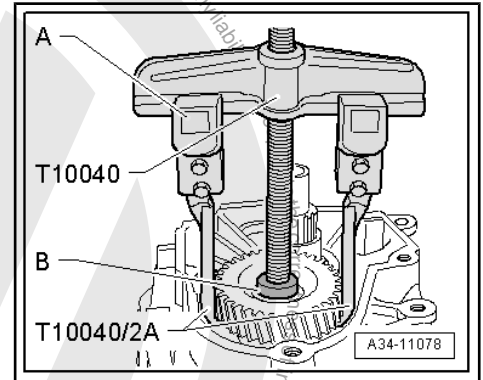


- Remove the 5th gear wheel.
- Insert the hook -A-
- B - Puller - Two Arm Thrust Piece - T10040/3- or M10 x 20 bolt, 17 mm



Note

- ◆ When remove drive gear, make sure the hook does not bend outward. Check the 5th gear for damage.
- ◆ Warm the gear slightly if necessary using the Hot Air Blower VAG1416 - VAG1416- .



7.6.2 5th Gear and Transmission Housing Cover, Installing

5th Gear, Installing. Refer to
⇒ [“7.7.3 5th Gear, Installing”, page 198](#) .

- Install the transmission housing cover and tighten the bolts to the specification. Refer to
⇒ [“7.3 Cover for Transmission Housing and 5th Gear, Removing and Installing”, page 181](#) .
- Install the clutch release lever and release the bearing. Refer to ⇒ [“2 Clutch Release Mechanism, Servicing”, page 45](#) .
- Fill the transmission fluid. Refer to ⇒ [page 95](#) .

7.7 Transmission, Assembly Sequence, Disassembling and Assembling

⇒ [“7.7.1 Transmission, Disassembling Completely”, page 189](#)

⇒ [“7.7.2 Assembling the Transmission”, page 195](#)

⇒ [“7.7.3 5th Gear, Installing”, page 198](#)

7.7.1 Transmission, Disassembling Completely

Special tools and workshop equipment required

- ◆ Holding Plate - VW309A-
- ◆ Transmission Support - VW353-
- ◆ Bearing/Bushing Installer - Multiple Use - VW295-
- ◆ Bearing Driver - Multiple Use - VW244B-
- ◆ Hot Air Blower - VAG1416-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Bracket - Multiple Use - 30-211A-
- ◆ Bearing Installer - Multiple Use - 32-111-
- ◆ Assembly Tool Kit - Press Piece 2 - T10030/4- from the Hydraulic Press - Bushing Tool Kit - T10030-
- ◆ Press Piece - 37mm - VW416B-
- ◆ Puller - Transmission Gears - T10408-
- ◆ Puller - Transmission Gears - Thrust Piece - T10408/2-
- ◆ Spacer Plate - T10408/3-



- ◆ hex collar bolt M7 x 35 and washer (components of the Puller - Transmission Gears - T10408-)
- ◆ Support Bridge - T10323-
- ◆ Rear Wheel Bearing Kit - Piece 7 - 3253/7-
- ◆ Press Piece - Multiple Use - VW433-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-
- ◆ Puller - Kukko Puller - 60-150mm Width, 200mm Length - Kukko 18/1- (quantity 2)
- ◆ Inductive Heater - VAS6414-
- ◆ Sealant - AMV 188 200 03-
- ◆ Stud bolt M8 x 100 mm

Removing and Installing Transmission Housing Cover, Transmission Housing, Selector Shaft with Selector Cover, Input Shaft, Output Shaft, Differential and Selector Mechanism.

Perform the following procedure:

- Secure the transmission on the Transmission Support - VW353- .
- Place the Drip Tray underneath.
- Open the oil filler plug and the oil drain plug.
- Drain the transmission fluid.
- Remove the clutch release lever, the release bearing and the guide sleeve. Refer to
⇒ ["2 Clutch Release Mechanism, Servicing", page 45](#) .

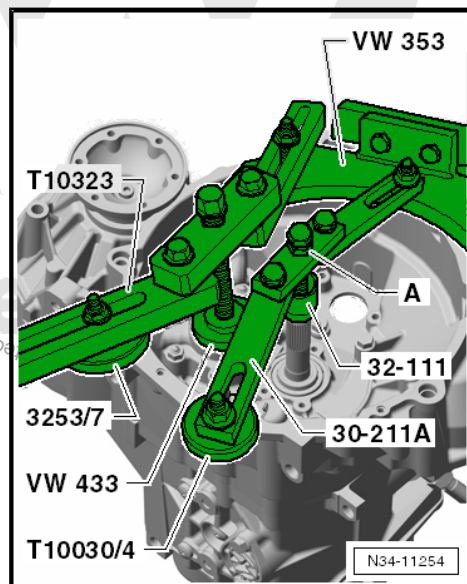
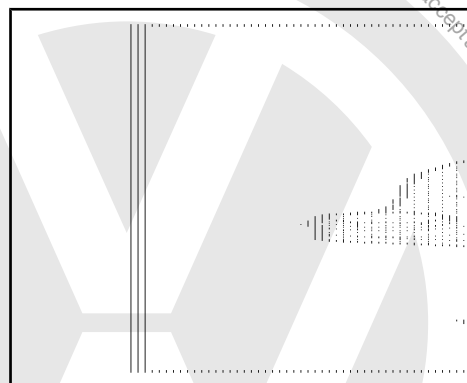
- Be careful not to damage the bearing for the input and output shafts when removing and installing 5th gear.
- When securing the transmission to the Transmission Support - VW353- , mount the following tools for support:

Under the Input Shaft:

- ◆ Bracket - Multiple Use - 30-211A-
- ◆ Bearing Installer - Multiple Use - 32-111-
- ◆ Assembly Tool Kit - Press Piece 2 - T10030/4-
- Secure the bolt on the Bracket - Multiple Use - 30-211A- with the nut -A-.

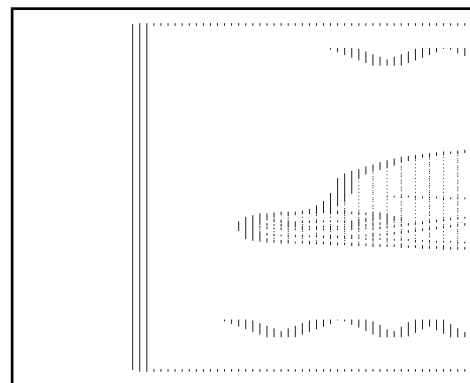
Under the Output Shaft Bracket

- ◆ Support Bridge - T10323-
- ◆ Rear Wheel Bearing Kit - Piece 7 - 3253/7-
- ◆ Press Piece - Multiple Use - VW433-



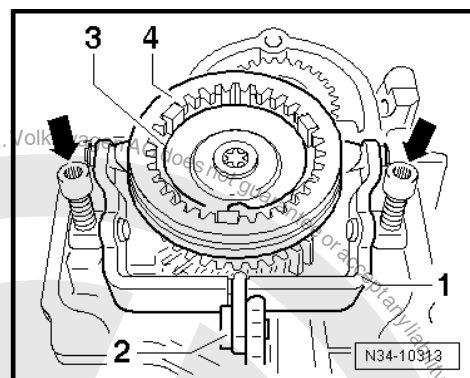


- Remove the transmission housing cover -arrow-.

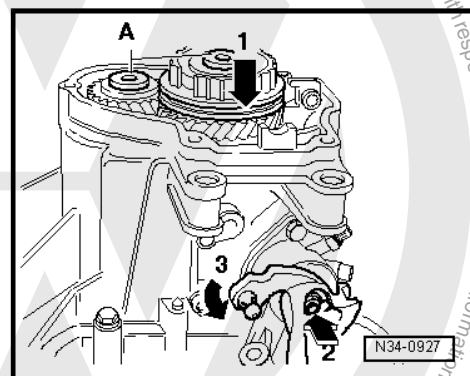


Remove the 5th gear shift fork as follows:

- Move the shift fork -1- into neutral.
- Remove the bolt -2- with the shift jaw for 5th gear.
- Remove both bolts -arrows- for the pivot pin.
- Remove the pivot pin.
- Remove the 5th gear shift fork.
- It is not necessary to remove the spring -3- and the locking collar -4-.



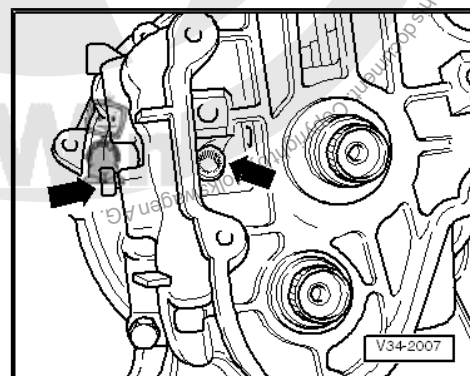
- Engage 5th gear -arrow 1- and 1st gear -arrows 2 and 3- to remove the bolts -A- for the synchronizer hub and for the 5th gear.
- The input shaft and the output shaft are blocked after both gears are engaged. The synchronizer hub and the gear wheel cannot turn. Both bolts can be loosened now.



Note

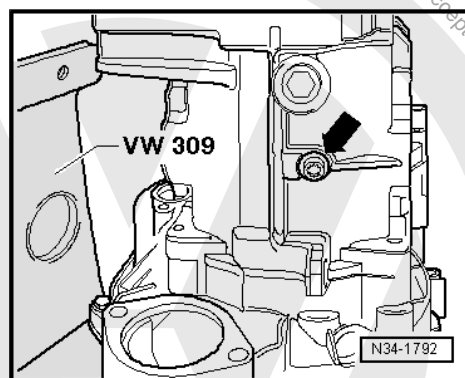
Remove any locking compound residue still in the threaded holes using a thread tap if the shafts are not going to be replaced.

- Remove both bolts -arrows- for the reverse shaft support.

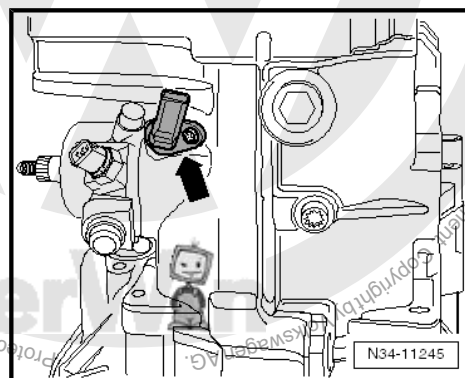




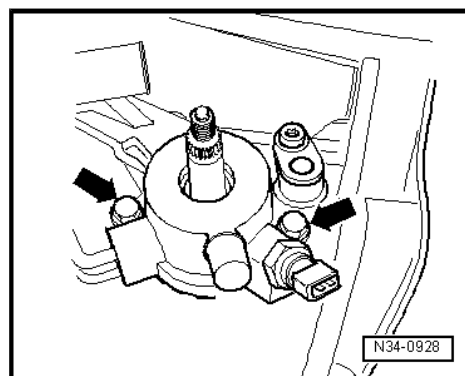
- Remove the third bolt -arrow- from the reverse shaft support.



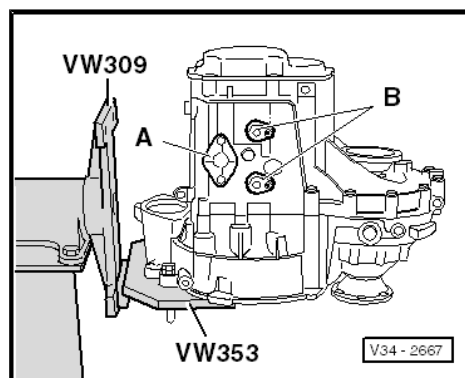
- Transmission on vehicles with Stop/Start system: remove the Transmission Neutral Position Sensor - G701- -arrow-.



- Move the gearshift shaft into neutral and remove the gearshift shaft with the gearshift cover. Remove the bolts -arrows- and pull the gearshift shaft out of the transmission housing.

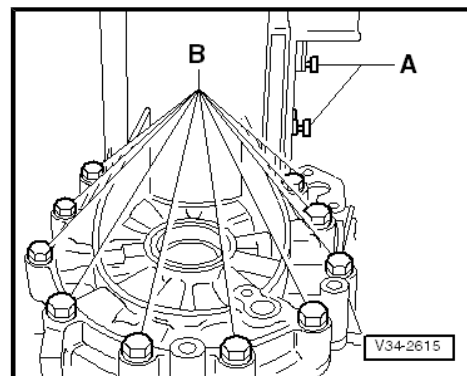


- Remove the cover -A- and pivot pin -B- on the bottom of the transmission.





- Remove pivot pins -A- on top side of transmission and bolts -B- for transmission housing to clutch housing in area of differential.

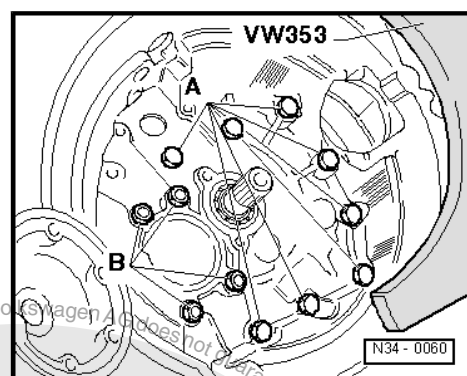


- Remove the bolts -A- that connect the clutch and transmission housing.



Note

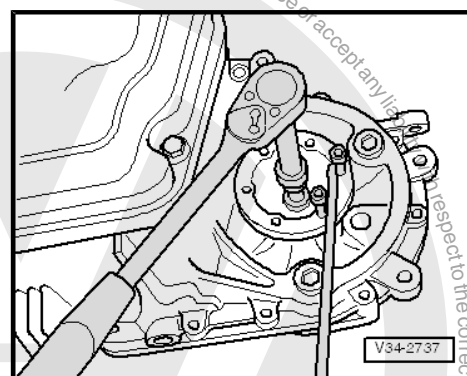
Do not remove the nuts -B- for the bearing mount on the output shaft.



- Remove both flange shafts.
- Remove the flange shafts with the springs, thrust washers and tapered rings.

Remove the Following Components Together with the Transmission Housing:

- ◆ 5th Gear Synchronizer Hub
- ◆ 5th Gear Wheel

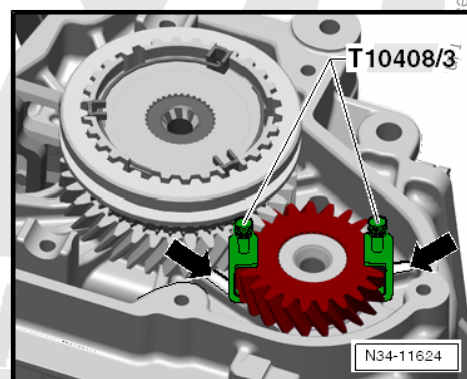


- Both Spacer Plate - T10408/3 must be attached to the 5th gear wheel.
- The Spacer Plate must be located above the 2 ribs on the housing, opposite each other -arrows-.



Note

- ◆ *There is a needle bearing under the 5th gear wheel.*
- ◆ *Secure the straps so that the needle bearing does not touch the 5th gear wheel when removing the transmission housing.*





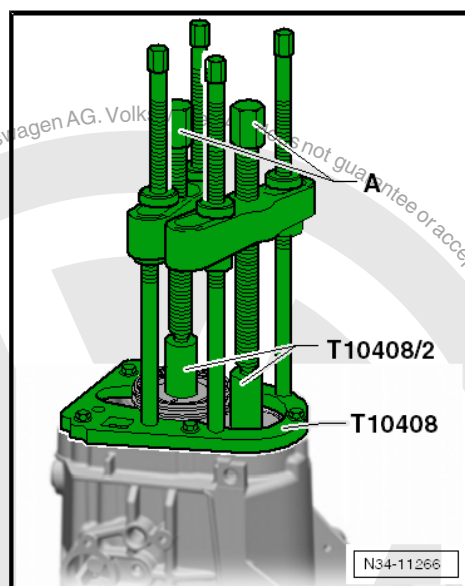
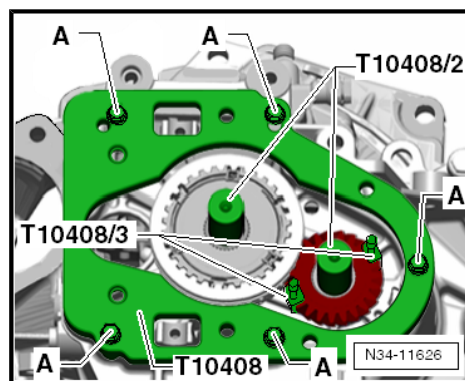
Use the Puller - Transmission Gears - T10408- with the Following Special Tools:

- ◆ Puller - Transmission Gears - Thrust Piece - T10408/2-
- ◆ Spacer Plate - T10408/3-
- ◆ Kukko 18/1 puller (quantity: 2)
- Install the Puller - Transmission Gears - T10408- in the threaded holes in the transmission housing cover using the bolts -A-.

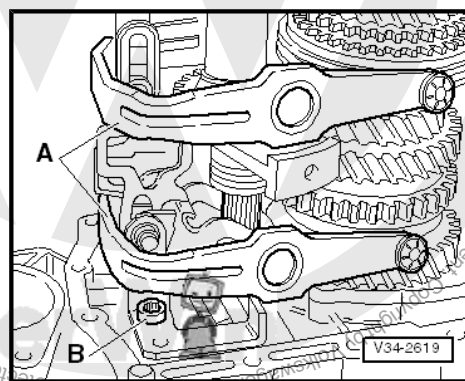
A - M7 x 35 bolts with washers

Tightening specification 18 Nm

- Place the Puller - Transmission Gears - Thrust Piece - T10408/2- on the shaft.
- Install the Puller - Kukko Puller - 60-150mm Width, 200mm Length .
- Remove the 5th gear synchronizer hub, the 5th gear wheel and the transmission housing by tightening the spindles -A- ($1\frac{1}{2}$ turn) alternating.
- Warm the 5th gear wheel slightly if necessary using the Hot Air Blower VAG1416 - VAG1416- .

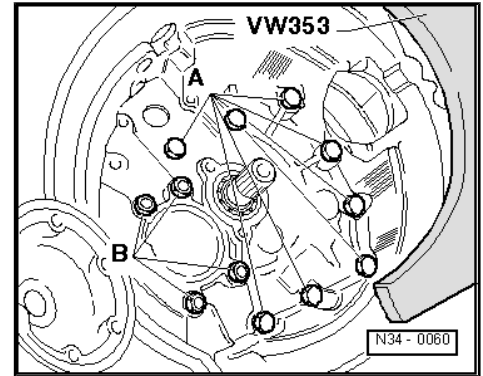


- Remove the shift forks -A- together with the gearshift rails.
- Remove the gearshift mechanism/reverse gear -B-.

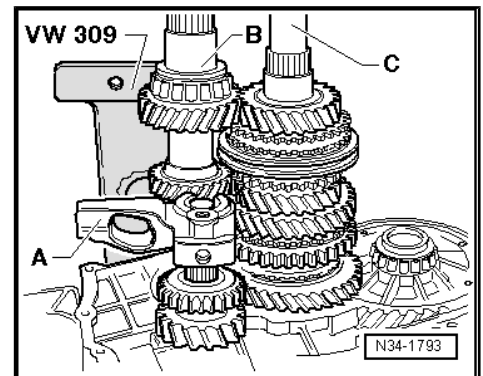




- Remove the nuts -B- from the bearing mount/output shaft.



- Remove the reverse gear -A-, the input shaft -B- and the output shaft -C-, one after the other, from the clutch housing.
- Remove the differential.



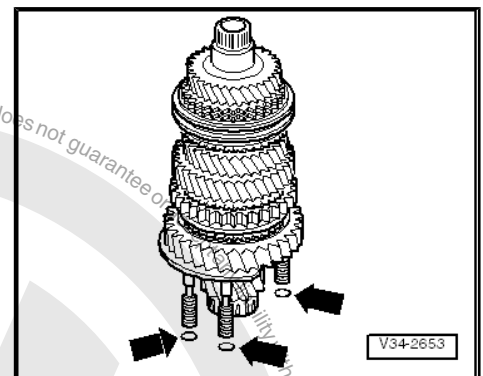
7.7.2 Assembling the Transmission

- Install the differential.
- Always replace the seals -arrows- for the bearing mount/output shaft.



Note

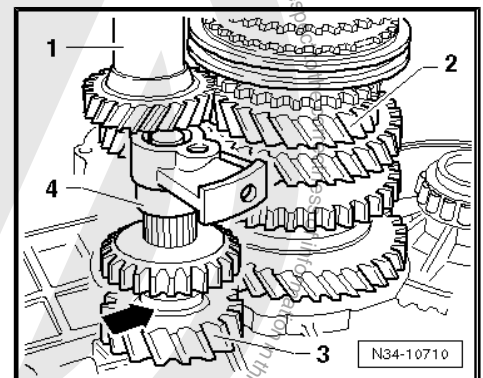
The illustration only shows 3 of the 4 seals.



- Insert output shaft -1- and output shaft -2- together.
- Tighten the output shaft bearing mount nuts to the specification -item 11- ➔ [Item 11 \(page 185\)](#).
- Mount the reverse gear wheel -3- on the needle bearing inside the clutch housing.

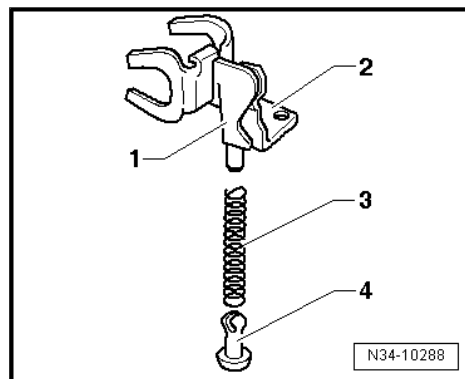
Shoulder -arrow- faces away from clutch housing.

- Make sure the reverse shaft -4- is complete
➔ ["3.1 Reverse Shaft, Disassembling and Assembling", page 267](#) ; do not mount the support on the reverse shaft.
- Install the reverse shaft into the clutch housing.
- Clean all threaded holes in reverse shaft supports of locking compound; cleaning can be done with a thread tap.
- Mount the reverse shaft support.

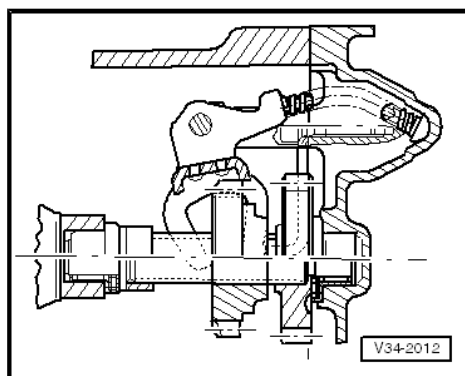




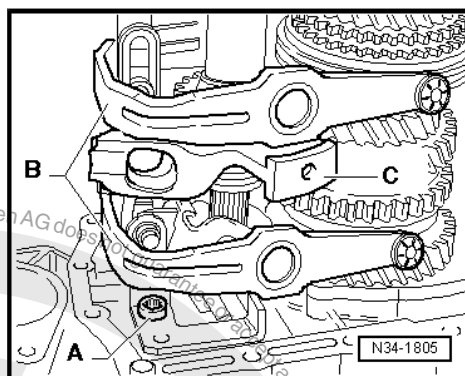
- Install the reverse gear shift fork -1- with the support for the reverse gear shift fork -2-, the spring -3- and the sliding piece -4-.



Reverse Gear Location



- Install the gearshift mechanism/reverse gear -A-.
 - Install the shift forks -B- together with the gearshift rails.
- Reverse gear supports -C- are located in front of selector rails.



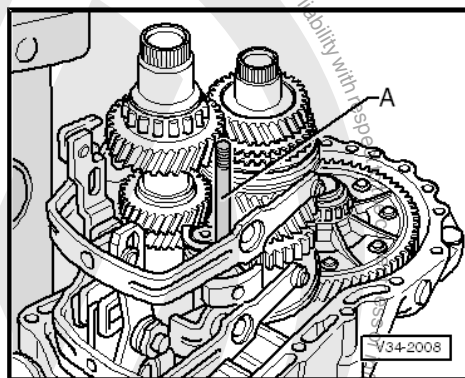
- Install the M8 x 100 stud bolts -A- into reverse shaft support so that the shaft is aligned after fitting the transmission housing.
- Align the gearshift rails.



Note

The shift segments must be installed in the grooves on the locking collars.

- Apply the Sealant - AMV 188 200 03- evenly onto the sealing surface of the clutch housing.
- Install the transmission housing and tighten to the tightening specification. Refer to -item 15- ➤ [Item 15 \(page 184\)](#) .



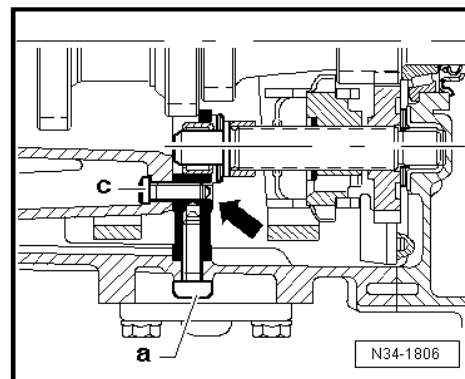


Install the bolts for the reverse shaft support -arrow- as follows:

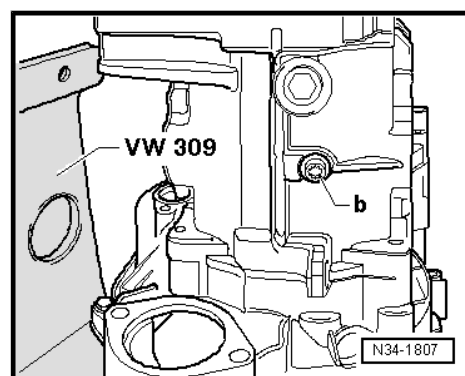
- Install the bolt -a-.
- Remove stud bolts -A- (see upper illustration).
- Install the bolt -c-.

Tightening sequence:

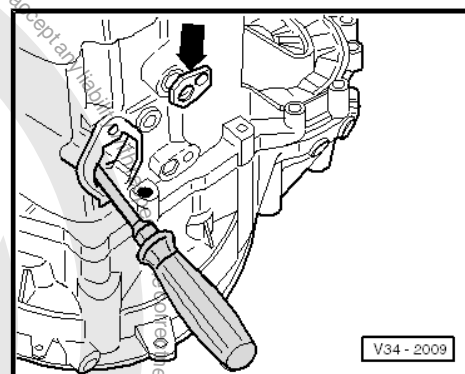
- Tighten the bolt -a- to 30 Nm.



- Tighten the bolt -b- to 25 Nm.
- Tighten the bolt -c- to 25 Nm (see upper illustration).

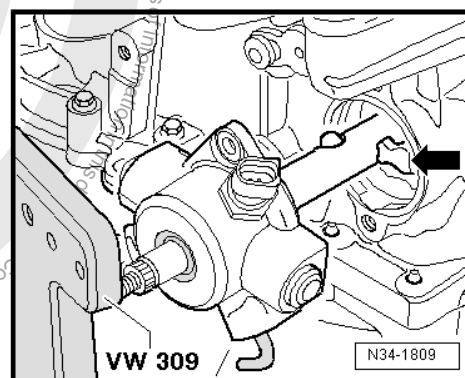


- Install the pivot pin -arrow- for the shift forks. To do this align shift mechanism using a screwdriver, so that the relevant pivot pin can be installed.
- Apply the Sealant - AMV 188 200 03- evenly onto the sealing surface of the cap.
- Install the gearshift shaft cover.



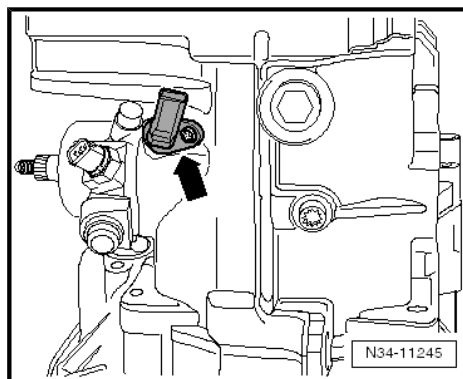
Install the gearshift shaft cover as follows:

- Move the gearshift rail into the neutral position.
- Apply the Sealant - AMV 188 200 03- evenly onto the sealing surface of the gearshift cover.
- Move the gearshift shaft into neutral.
- Position the selector shaft so that selector finger -arrow- is inserted into the selector rails.
- Tighten the selector shaft selector cover to the specification -item 17- ➔ [Item 17 \(page 184\)](#).

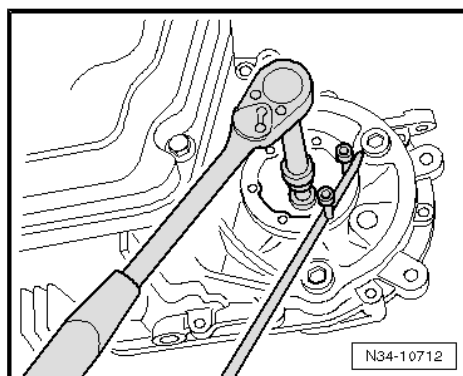




- Transmission on vehicles with Stop/Start system: install the Transmission Neutral Position Sensor - G701- -arrow- and tighten the screw to the tightening specification -item 11- ➔ [Item 11 \(page 183\)](#) .

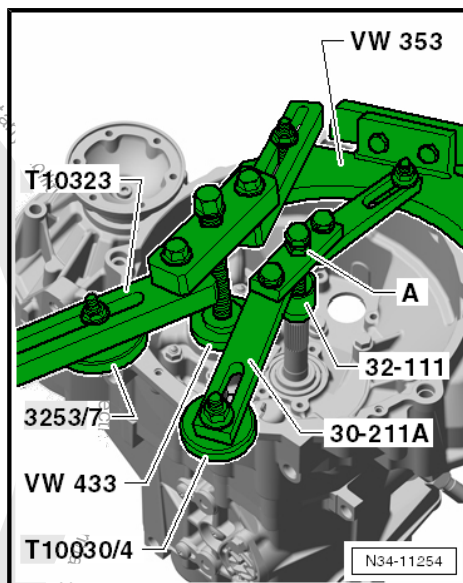


- Install both flange shafts with springs, thrust washers and tapered rings. Refer to ➔ [“3.1 Differential, Disassembling and Assembling”](#), [page 285](#) .



7.7.3 5th Gear, Installing

- Pay attention that the Bracket - Multiple Use - 30-211A- and the Support Bridge - T10323- is installed.
- Secure the bolt on the Bracket - Multiple Use - 30-211A- with the nut -A-.



Installed Position, 5th Gear Wheel

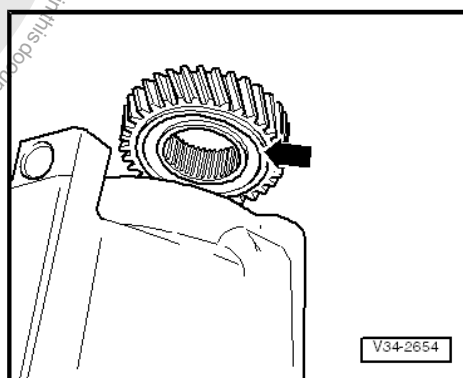
The groove all the way around -arrow- faces the transmission housing.

- To install, heat the 5th gear wheel to approximately 100 °C with the Inductive Heater - VAS6414- .



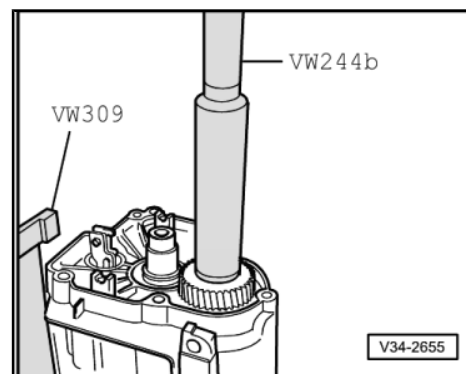
WARNING

Wear safety gloves.





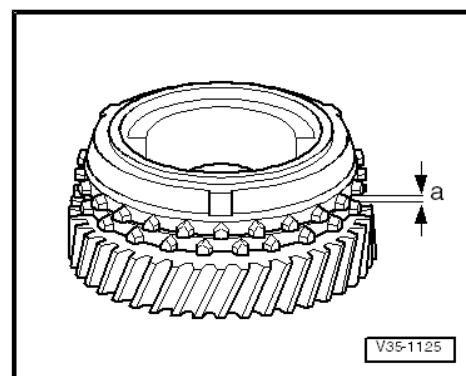
- Install the 5th gear wheel.



Checking 5th gear synchronizer ring

- Before reinstalling drive gear and synchronizer ring for 5th gear, press the synchronizer ring onto the taper of the drive gear and measure the gap dimension -a- using a feeler gauge.

Gap dimension -a-	Installation Dimension	Wear limit
5th Gear	1.1 to 1.7 mm	0.5 mm

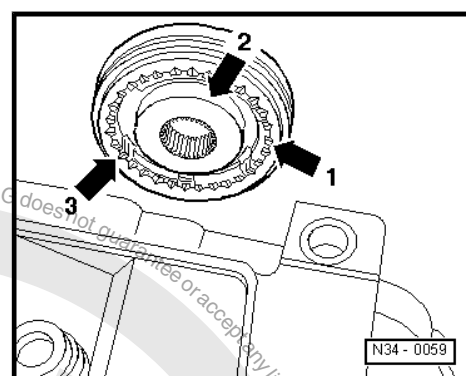


- Install 5th gear wheel with needle bearing.
- Place the 5th gear synchronizer ring onto the selector gear.
- If disassembled, assemble the 5th gear synchronizer hub/locking collar before installing
⇒ Fig. "5th Gear Locking Collar/Synchronizer Hub Assembly", page 247 .

Installed Position of 5th Gear Synchronizer Hub/Locking Collar

The pointed teeth on the locking collar -arrow 1- and the high collar on the synchronizer hub -arrow 2- face the transmission housing.

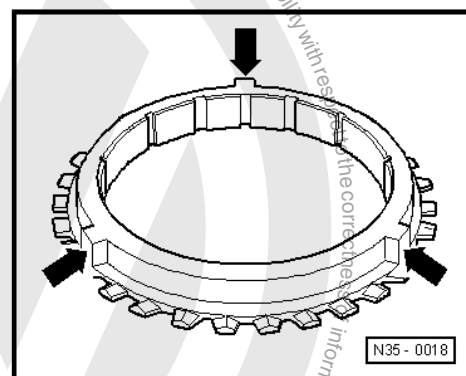
The notches -arrow 3- on the synchronizer hub must line up with the cast locking pieces on the synchronizer ring (⇒ Fig. "5th Gear Synchronizer Ring with Cast Locking Pieces", page 199 lower).



5th Gear Synchronizer Ring with Cast Locking Pieces

- Cover all openings with a cloth to prevent foreign objects from getting into the transmission.
- To install, heat the 5th gear synchronizer hub to approximately 100 °C (212 °F) with the Inductive Heater - VAS6414- .

WARNING
Wear safety gloves.





- Install the 5th gear synchronizer hub



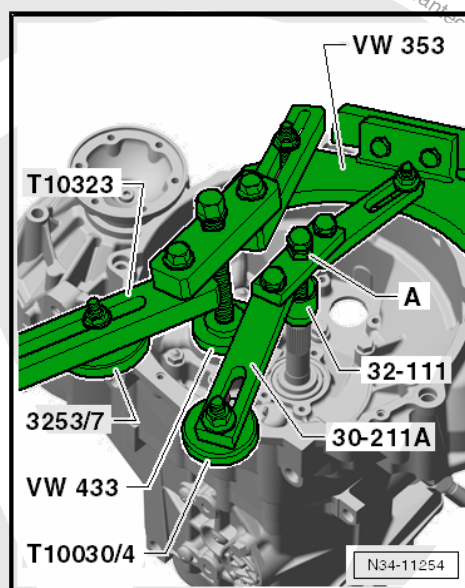
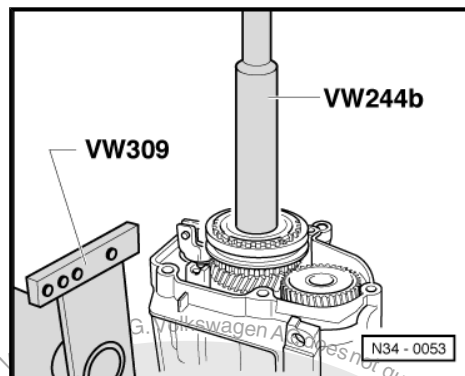
Note

Make sure there is enough clearance when installing the synchronizer ring.

- Loosen the support for the input shaft.
- If it has not been done already, clean any locking fluid residue from the threaded hole for the synchronizer hub bolt and 5th gear wheel with a thread tap.

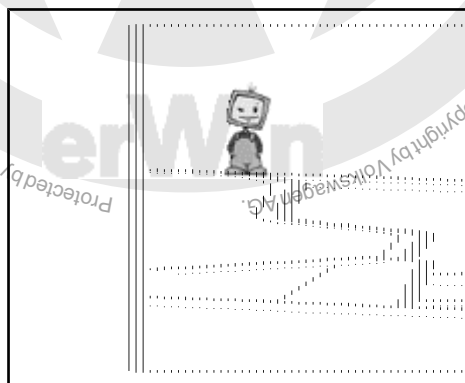
Otherwise, there is the danger that the screws could shear off.

- Screw-in new synchronizer hub bolts and 5th gear wheel.

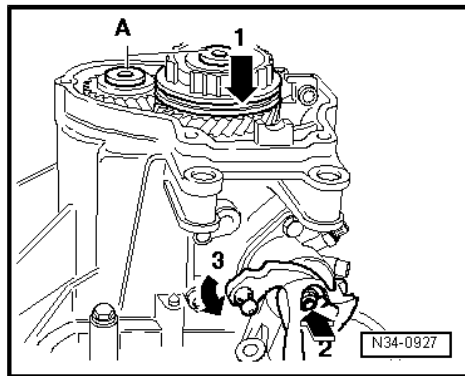


Installed Position of Plate Springs for 5th Gear Synchronizer Hub and Gear Securing Bolts

The outer diameter -arrows- faces 5th gear.



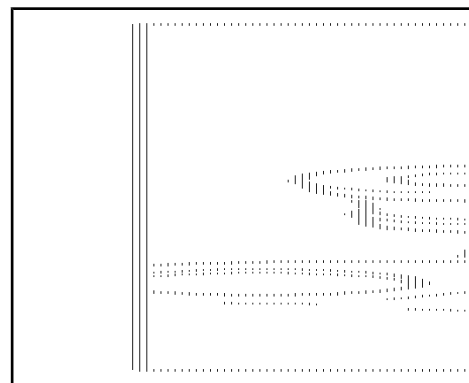
- Engage 5th gear -arrow 1- and 1st gear -arrows 2- and -3- and then tighten the bolts -A- for the synchronizer hub and the 5th gear wheel to the tightening specification. Refer to -item 4- ➔ [Item 4 \(page 181\)](#) .
- The input shaft and the output shaft are blocked after both gears are engaged. The synchronizer hub and the gear wheel cannot turn. Both bolts can be loosened now.
- Install the 5th gear shift fork.





Adjusting the 5th Gear

- Engage 5th gear. Loosen the bolt -1-. Push the locking collar and the shift jaw in direction of -arrow-. Tighten the bolt -1- to 25 Nm.
- Check measurement: it must not be possible to slide a 0.2 mm feeler gauge between the locking collar and drive gear. Repeat the adjusting procedure if necessary.
- Remove 5th gear. The locking collar must be in the neutral position. The synchronizer ring must move freely.
- Move the gearshift lever (selector lever) through all the gears.
- Install the transmission housing cover. Refer to [⇒ "7.3 Cover for Transmission Housing and 5th Gear, Removing and Installing", page 181](#) .
- Install the release bearing guide sleeve. Refer to [⇒ "2 Clutch Release Mechanism, Servicing", page 45](#) .
- Install the clutch release lever and release the bearing. Refer to [⇒ "2 Clutch Release Mechanism, Servicing", page 45](#) .
- Fill the transmission fluid. Refer to [⇒ page 95](#) .





8 Transmission Housing and Clutch Housing, Servicing

Special tools and workshop equipment required

- ◆ Bearing/Bushing Installer - Multiple Use - VW295-
- ◆ Bearing/Bushing Installer - Multiple Use - VW295A-
- ◆ Press Piece - Multiple Use - VW447H-
- ◆ Press Piece - Multiple Use - VW512-
- ◆ Press Piece - Multiple Use - VW454-
- ◆ Press Piece - Front Control Arm - 2040-
- ◆ Puller - Starter Bushing - VW228B- (not needed with this transmission)
- ◆ Pilot Drift - VW222A- (not needed with this transmission)
- ◆ Seal Installer - Driver Set - 3066- (spindle)
- ◆ Press Piece - Pivot Mount Bushing - 3124- (the seal and sleeve are in two pieces)
- ◆ Slide Hammer Set - VW771- (the seal and sleeve are a single piece)
- ◆ Slide Hammer Set - Hook - VW771/37- (the seal and sleeve are a single piece)
- ◆ Seal Installer - One-Piece Seal - T10148- (the seal and sleeve are a single piece)



1 - Transmission Housing

- ☐ When replacing: adjust the input shaft and differential. Refer to ⇒ [“2 Adjustment Overview”, page 284](#)

2 - Needle Bearing

- ☐ For the output shaft
- ☐ Removing. Refer to ⇒ [Fig. “Removing the Needle Bearing”, page 205](#).
- ☐ Installing and securing. Refer to ⇒ [Fig. “Installing the Needle Bearing”, page 205](#)

3 - Oil Filler Plug

- ☐ 35 Nm
- ☐ The gear oil level cannot be checked by removing the oil filler plug.
- ☐ If transmission was disassembled, it must be filled before being installed again.

Capacity. Refer to ⇒ [“2.3 Codes, Transmission Allocation and Capacities”, page 3](#).

4 - Outer Race/Tapered Roller Bearing

- ☐ For the output shaft
- ☐ Removing and Installing. Refer to ⇒ [“2.1 Output Shaft, Disassembling and Assembling”, page 252](#).
- ☐ When replacing: adjust the output shaft. Refer to ⇒ [“2.2 Output Shaft, Adjusting”, page 263](#).

5 - Shim

- ☐ For the output shaft
- ☐ Adjustment overview. Refer to ⇒ [“2 Adjustment Overview”, page 284](#).

6 - Shim

- ☐ For the input shaft
- ☐ Adjustment overview. Refer to ⇒ [“2 Adjustment Overview”, page 284](#).

7 - Outer Race/Tapered Roller Bearing

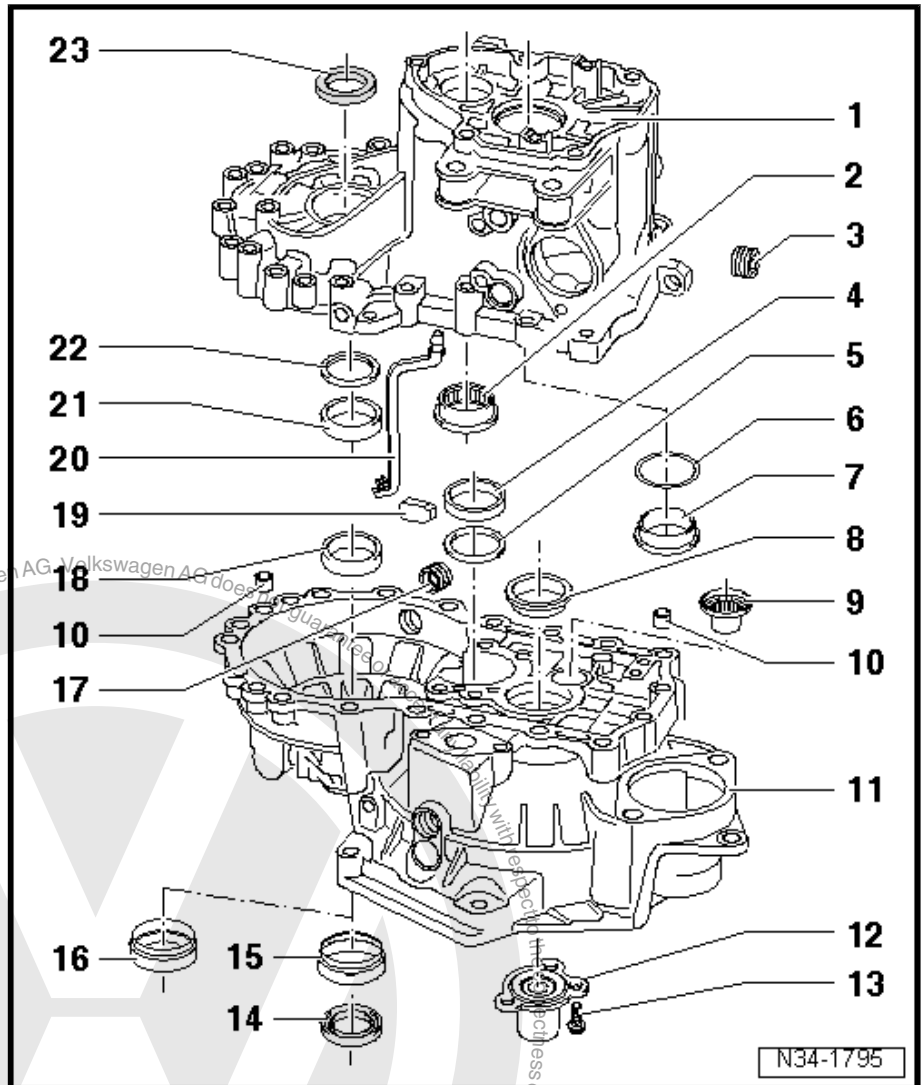
- ☐ For the input shaft
- ☐ Removing and Installing. Refer to ⇒ [“1.1 Input Shaft, Disassembling and Assembling”, page 241](#).
- ☐ When replacing: adjust the input shaft. Refer to ⇒ [“1.2 Input Shaft, Adjusting”, page 247](#)

8 - Outer Race/Tapered Roller Bearing

- ☐ For the input shaft
- ☐ Removing and Installing. Refer to ⇒ [“1.1 Input Shaft, Disassembling and Assembling”, page 241](#).
- ☐ When replacing: adjust the input shaft. Refer to ⇒ [“1.2 Input Shaft, Adjusting”, page 247](#)

9 - Needle Sleeve

- ☐ Removing and Installing. Refer to ⇒ [“3.1 Reverse Shaft, Disassembling and Assembling”, page 267](#).





10 - Alignment Sleeve

- ☐ Quantity: 2

11 - Clutch Housing

- ☐ When replacing: adjustment overview. Refer to ➤ [“2 Adjustment Overview”, page 284](#)

12 - Guide Sleeve

- ☐ With seal for the driveshaft and vulcanized O-ring
- ☐ Removing the seal. Refer to ➤ [Fig. “Removing the Seal from the Guide Sleeve”, page 205](#)
- ☐ Installing the seal. Refer to ➤ [Fig. “Installing the Seal all the Way into the Guide Sleeve”, page 205](#)
- ☐ Remove the guide sleeve to replace the seal
- ☐ Replace the guide sleeve and O-ring together if the O-ring is damaged.

13 - Cylinder Bolt

- ☐ 20 Nm

14 - Seal

- ☐ Replacing. Refer to
➤ [“1.4 Seal, Two-Piece Right Flange Shaft Seal and Sleeve, Replacing”, page 278](#) .

15 - Sleeve

- ☐ For the seal -item 14- ➤ [Item 14 \(page 204\)](#)
- ☐ Removing. Refer to ➤ [Fig. “Prying out the Sleeve -arrow-”, page 206](#) .
- ☐ Installing. Refer to ➤ [Fig. “Installing the Sleeve”, page 206](#) .

16 - Seal and Sleeve One-Piece

- ☐ If the seal is damaged, then replace both the seal and sleeve.
- ☐ Removing. Refer to ➤ [Fig. “Removing the Sleeve and Seal”, page 206](#) .
- ☐ Installing. Refer to ➤ [Fig. “Installing the Sleeve and Seal”, page 206](#) .

17 - Oil Drain Plug

- ☐ 35 Nm

18 - Outer Race/Tapered Roller Bearing

- ☐ For the differential
- ☐ Removing and installing. Refer to ➤ [“3 Differential”, page 285](#)
- ☐ When replacing: adjust the differential. Refer to ➤ [“3.2 Differential, Adjusting”, page 291](#)

19 - Magnet

- ☐ Held in place by housing joint surface

20 - Oil catch tray

- ☐ Install the oil catch tray into the transmission housing
➤ [Fig. “Installing the Oil Catch Tray -A- into the Transmission”, page 207](#)

21 - Outer Race/Tapered Roller Bearing

- ☐ For the differential
- ☐ Removing and installing. Refer to ➤ [“3 Differential”, page 285](#)
- ☐ When replacing: adjust the differential

➤ [“3.2 Differential, Adjusting”, page 291](#)

22 - Shim

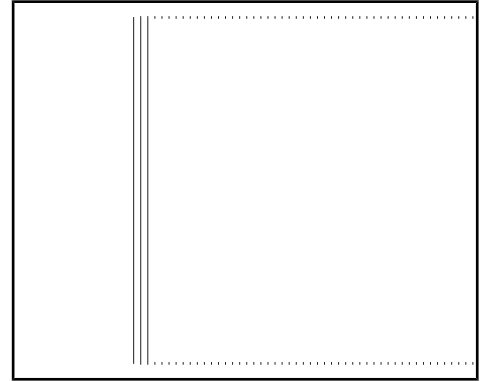
- ☐ For the differential
- ☐ Adjustment overview. Refer to ➤ [“2 Adjustment Overview”, page 284](#) .

23 - Seal

- ☐ Replacing. Refer to ➤ [“1.2 Left Flange Shaft Seal, Replacing”, page 277](#) .

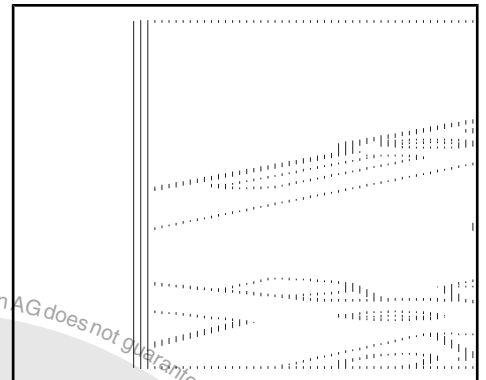


Removing the Needle Bearing

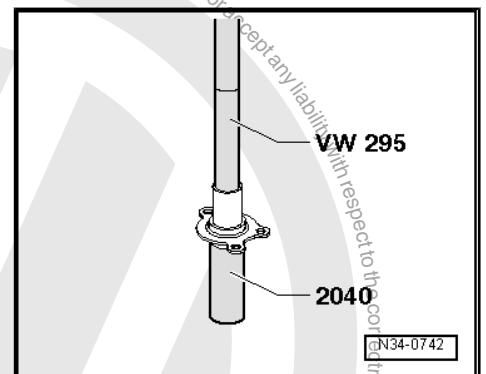


Installing the Needle Bearing

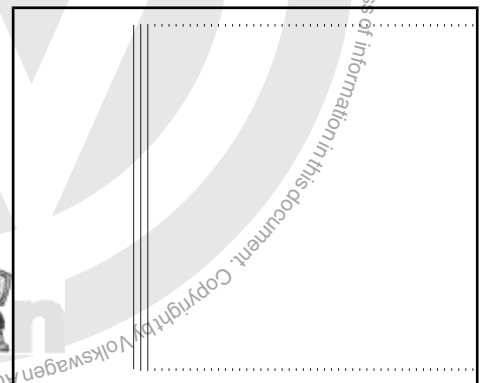
- Secure the needle bearing at three points inside the transmission housing, offset by 120°, using a mandrel.



Removing the Seal from the Guide Sleeve

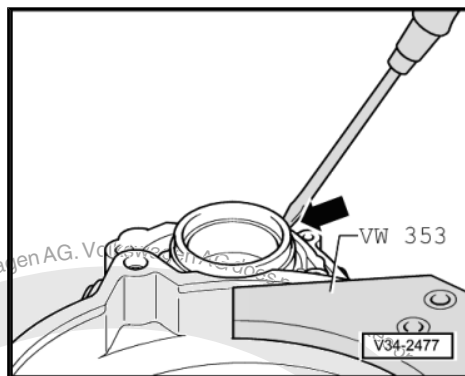


Installing the Seal all the Way into the Guide Sleeve





Prying out the Sleeve -arrow-



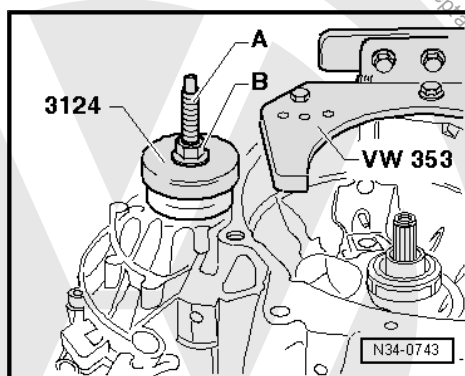
Installing the Sleeve

- Attach the spindle -A- from the Seal Installer - Driver Set - 3066- into the threaded piece on the differential.
- Turn the nut -B- and pull the sleeve all the way over the Press Piece - Pivot Mount Bushing - 3124- .



Note

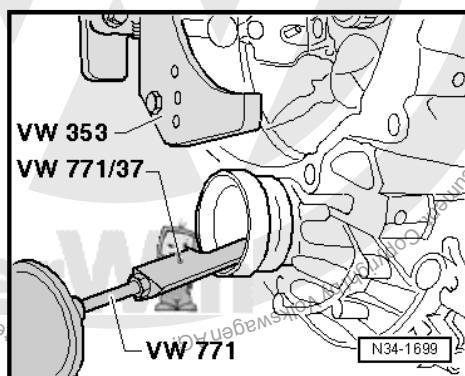
If transmission is disassembled, press sleeve in onto stop with Press Piece - Pivot Mount Bushing - 3124- .



Removing the Sleeve and Seal

The sleeve has a shoulder on the inside.

- Mount the Slide Hammer Set - Hook - VW771/37- behind the shoulder inside the sleeve.
- Using force, push the Slide Hammer Set - Hook - VW771/37- into the sleeve.



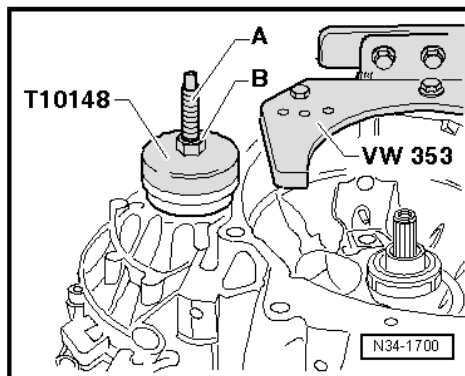
Installing the Sleeve and Seal

- Clean the seal seat inside the transmission.
- Attach the spindle -A- from the Seal Installer - Driver Set - 3066- into the threaded piece on the differential.
- Turn the nut -B- and pull the sleeve all the way over the Seal Installer - One-Piece Seal - T10148- .



Note

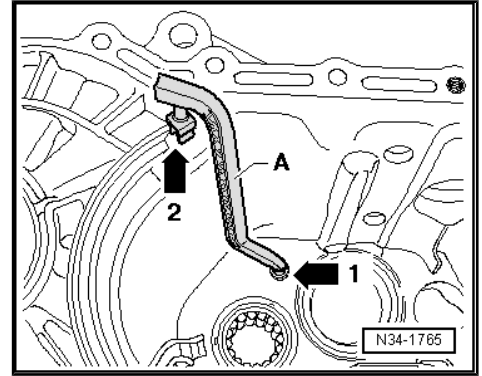
If transmission is disassembled, press sleeve in onto stop using Seal Installer - One-Piece Seal - T10148- .





Installing the Oil Catch Tray -A- into the Transmission

- Insert the oil catch tray into the hole -arrow 1- and groove -arrow 2- at the same time.





9 Shift Unit, Servicing

Special tools and workshop equipment required

- ◆ Breather Tube Tool - T10203-
- ◆ Press Piece - Shift Rod/Alternator - VW423-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-

1 - Gearshift Unit

- ❑ Consisting of the gear-shift shaft and the gear-shift cover
- ❑ The components cannot be separated from each other

2 - Back-Up Lamp Switch - F4-

- ❑ Tighten to 20 Nm.
- ❑ Coat the tab lightly with MoS₂ grease.

3 - Locking Elbow

- ❑ For adjusting the shift mechanism
- ❑ Removing. Refer to [⇒ Fig. "Removing the locking elbow -A- from the shift cover", page 209](#).
- ❑ Installing. Refer to [⇒ Fig. "Pressing the Locking Elbow -A- into Selector Cover", page 209](#)

4 - Relay Lever

- ❑ Installation position. Refer to [⇒ Fig. "Selector Lever/ Relay Lever Installed Position", page 76](#).
- ❑ Plastic relay lever from 05/2007. Refer to [⇒ "1.8 Plastic Relay Lever", page 77](#).

5 - Bearing Bushing

- ❑ Not needed for the plastic relay lever

6 - Seal

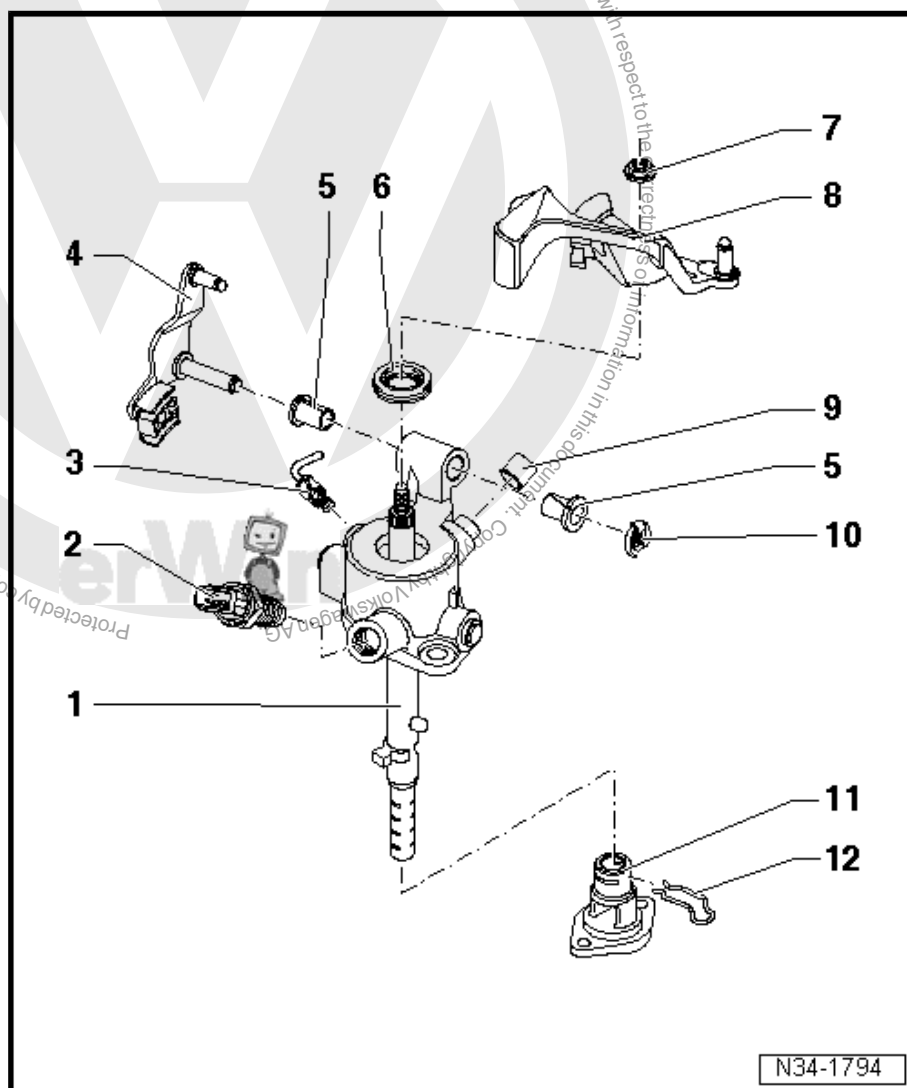
- ❑ Pry out with a screwdriver
- ❑ Installing. Refer to [⇒ Fig. "Installing the Seal", page 209](#).

7 - Hex Nut

- ❑ 23 Nm
- ❑ Always replace.
- ❑ Self-locking

8 - Selector Lever

- ❑ Insert so that master spline aligns with shift rod
- ❑ Can be replaced with the shift mechanism still installed





- ☐ Installation position. Refer to ➤ Fig. ““Selector Lever/Relay Lever Installed Position””, page 76 .

9 - Cap

- ☐ For the transmission ventilation

10 - Lock Washer

- ☐ Always replace.
- ☐ Not needed for the plastic relay lever

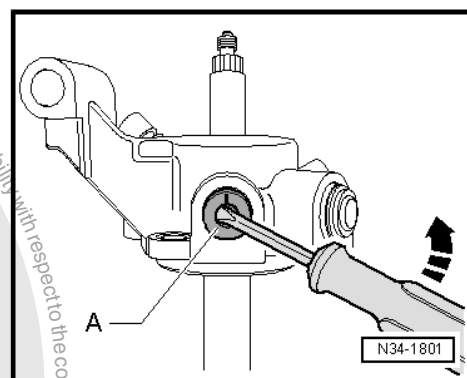
11 - Cap

12 - Spring

- ☐ Not installed in all transmissions
- ☐ Install if present

Removing the locking elbow -A- from the shift cover

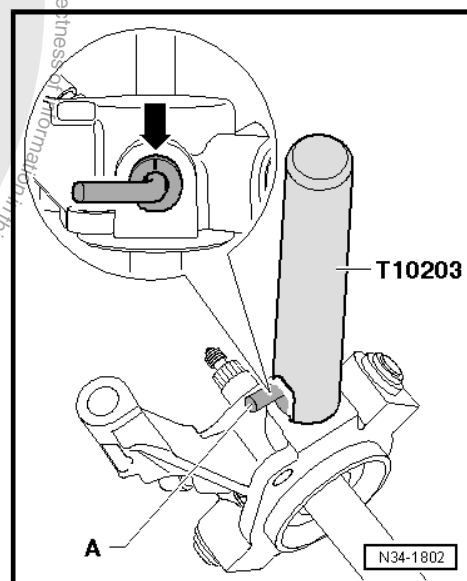
- Remove the outer part of the locking elbow.
- Remove the locking elbow carefully with a screwdriver.



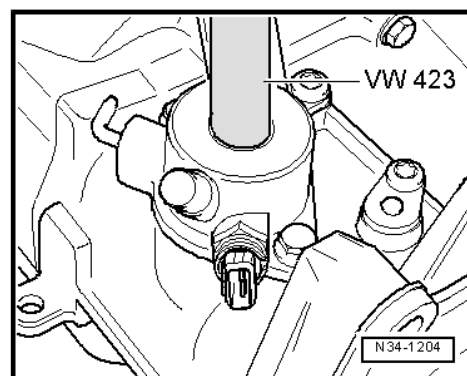
Pressing the Locking Elbow -A- into Selector Cover

Installation position:

The marking -arrow- faces toward upper part of gearshift shaft.



Installing the Seal





10 Shift Forks, Disassembling and Assembling

Special tools and workshop equipment required

- ◆ Press Plate - VW402-
- ◆ Subframe Support Tool - Press Piece - 3290/1-
- ◆ Subframe Bushing Tool Kit - 3301-
- ◆ Press Piece - Multiple Use - VW431-
- ◆ Press Piece - Multiple Use Spacer Sleeve - VW472/2-
- ◆ Valve Guide/Clutch Release Push Rod Seal Drift - 10-206-
- ◆ Pry Lever - 80-200-
- ◆ Assembly Mandrel for Gear Selector Rod - 10-508-
- ◆ Spring Strut Compressor - 2070-



Note

*The shift fork group (-item 7- ➔ **Item 7 (page 211)**) does not need to be disassembled to remove and install shift segments, lock washers and angular contact ball bearings.*



1 - 5th Gear Shift Segment

- ☐ Identification. Refer to [⇒ Fig. "Shift Segment Identification", page 212](#).
- ☐ The shift segment must still rotate easily after the lock washer is installed.

2 - Lock Washer

- ☐ Always replace.
- ☐ Removing. Refer to [⇒ Fig. "Removing the Lock Washer", page 212](#).
- ☐ Installing. Refer to [⇒ Fig. "Installing the Lock Washer", page 212](#).

3 - 5th Gear Shift Fork

- ☐ Adjusting. Refer to [⇒ Fig. "Adjusting the 5th Gear", page 201](#).

4 - Bolt

- ☐ 25 Nm

5 - 5th Gear Shift Jaw

6 - Angular Contact Ball Bearing

- ☐ Quantity: 4
- ☐ Removing. Refer to [⇒ Fig. "Removing the Angular Contact Ball Bearing", page 212](#).
- ☐ Installing the bearing inner race into the outer race. Refer to [⇒ Fig. "Installing the angular contact ball bearing inner race -A- into the outer race", page 213](#)
- ☐ Installing. Refer to [⇒ Fig. "Installing the angular contact ball bearing into the shift fork", page 213](#).

7 - Shift Fork Group with Gearshift Rails

8 - 1st/2nd Gear Shift Segment

- ☐ Identification. Refer to [⇒ Fig. "Shift Segment Identification", page 212](#).
- ☐ The shift segment must still rotate easily after the lock washer is installed.

9 - 3rd/4th Gear Shift Segment

- ☐ Identification. Refer to [⇒ Fig. "Shift Segment Identification", page 212](#).
- ☐ The shift segment must still rotate easily after the lock washer is installed.

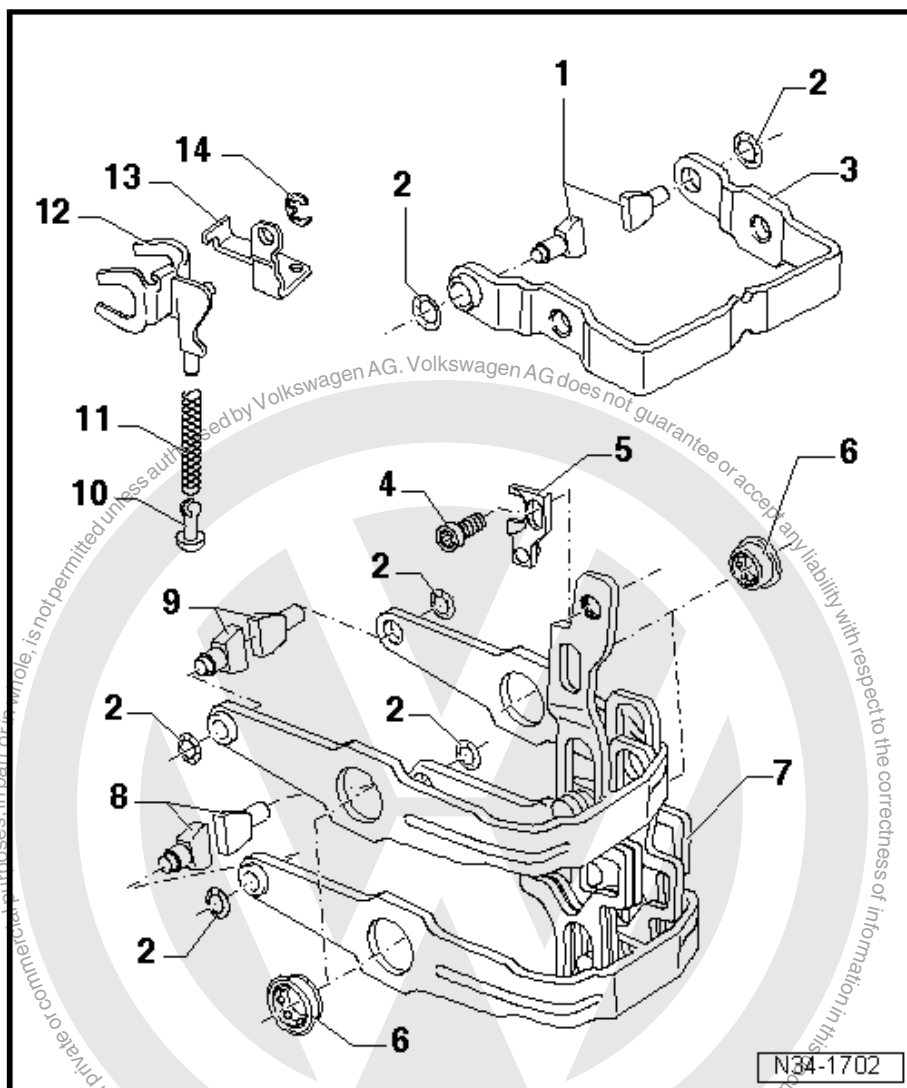
10 - Glide

11 - Spring

12 - Reverse Gear Shift Fork

13 - Support for the reverse gear shift fork

14 - Circlip

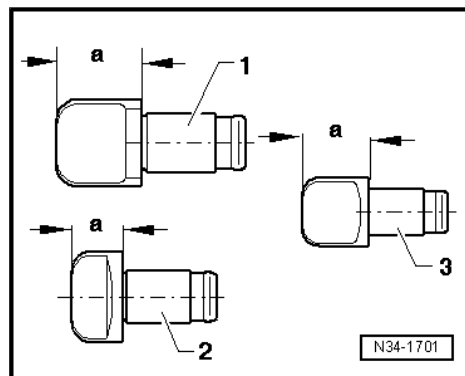




Shift Segment Identification

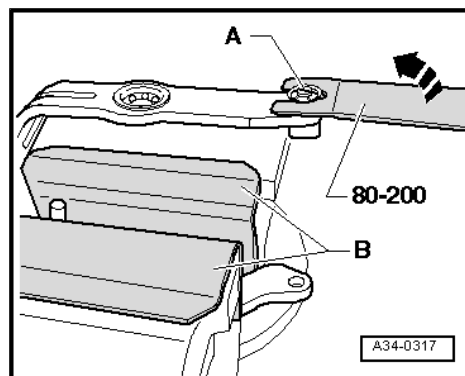
Dimension -a-

- 1 - 1st and 2nd gear shift segments = 11.4 mm
- 2 - 3rd and 4th gear shift segments = 7.7 mm
- 3 - 5th gear shift segments = 12.1 mm



Removing the Lock Washer

- Secure shift fork in vise with protective jaws -B-.
- Pry off the lock washer -A- in the direction of the -arrow-.



Installing the Lock Washer

- Press the lock washer in the groove in the shift segment using a socket wrench

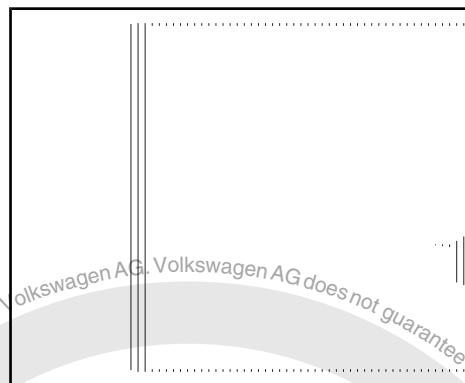


Note

The shift segment must still rotate easily after the lock washer is installed.

A - 10 mm socket wrench

B - Protective Jaws



Removing the Angular Contact Ball Bearing



Note

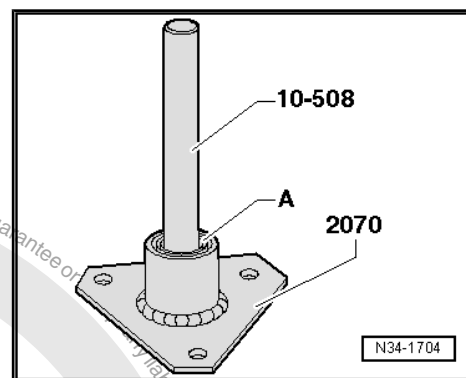
Be careful not to bend the shift forks when removing and installing the angular contact ball bearing.





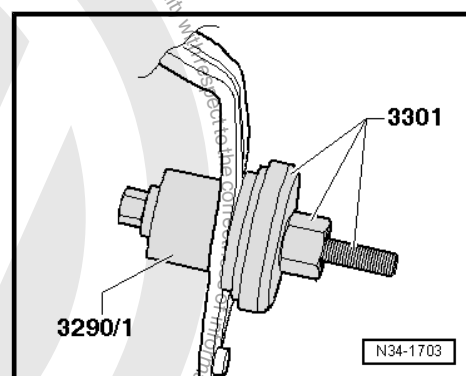
Installing the angular contact ball bearing inner race -A- into the outer race

The bearing inner race must engage with outer race.



Installing the angular contact ball bearing into the shift fork

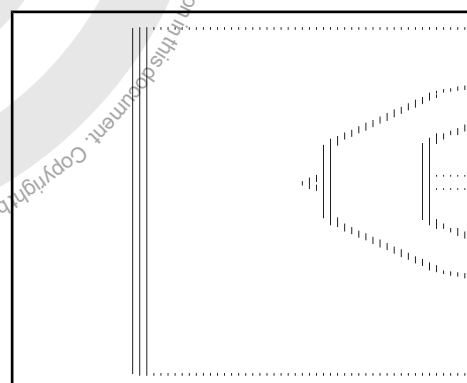
The recess in the Subframe Support Tool - Press Piece - 3290/1-point to the ball bearing.



Shift Fork with the Shift Segments Installed

	Dimension -a- (mm)
1st/2nd gear shift fork	87.2 to 87.4
3rd/4th gear shift fork	93.6 to 93.8

Shift segment allocation. Refer to
⇒ Fig. "Shift Segment Identification" page 212

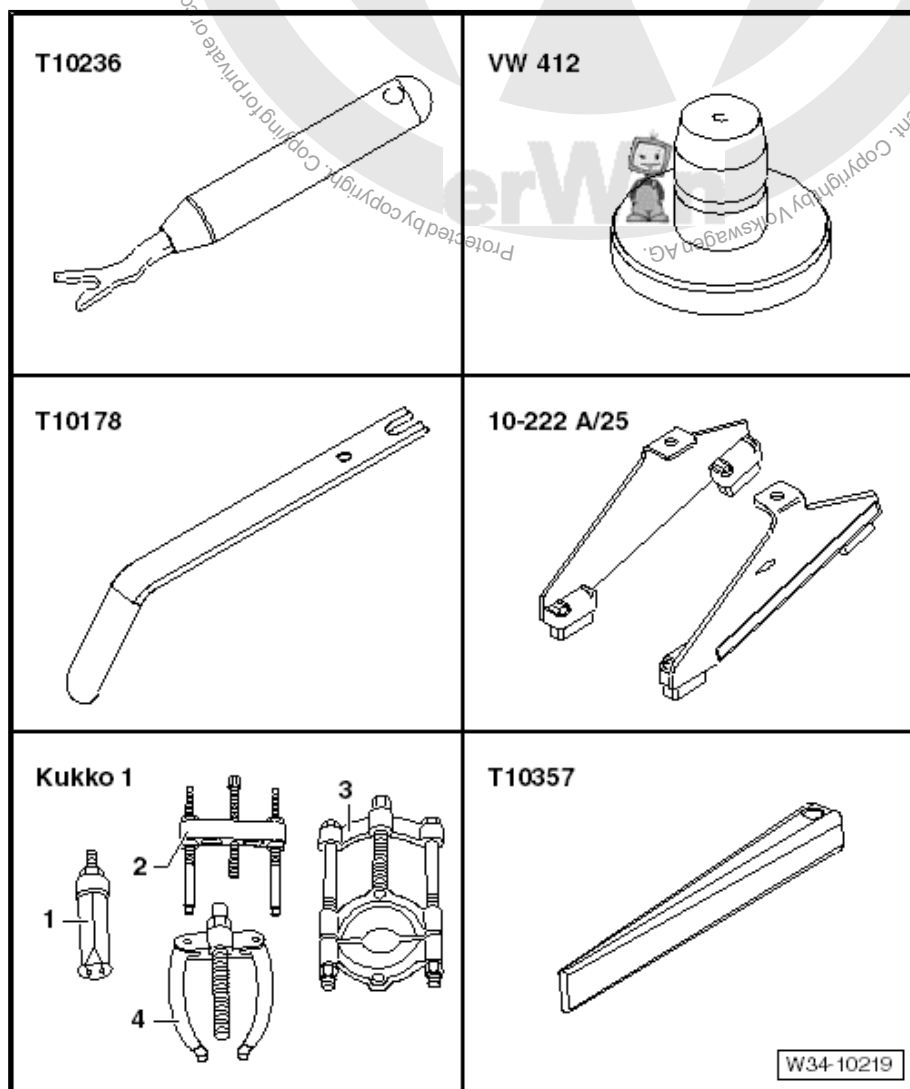
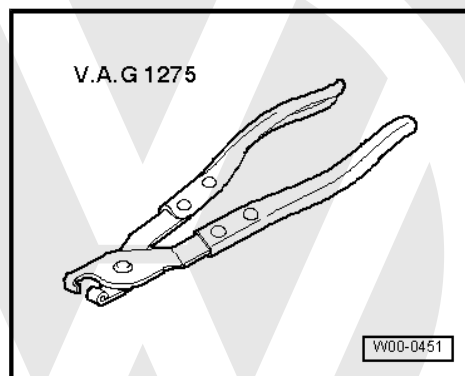




11 Special Tools

Special tools and workshop equipment required

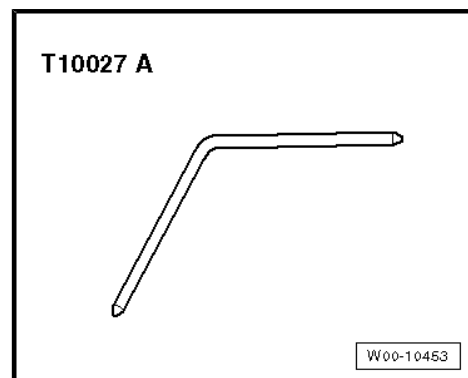
- ◆ Hose Clamp Pliers - VAG1275-



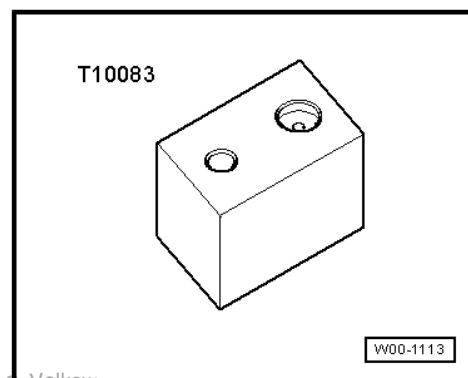
- ◆ Assembly Tool - T10178- or flat iron, 200 x 25 x 5
- ◆ Release Tool - T10236-
- ◆ Wedge Tool - T10357-

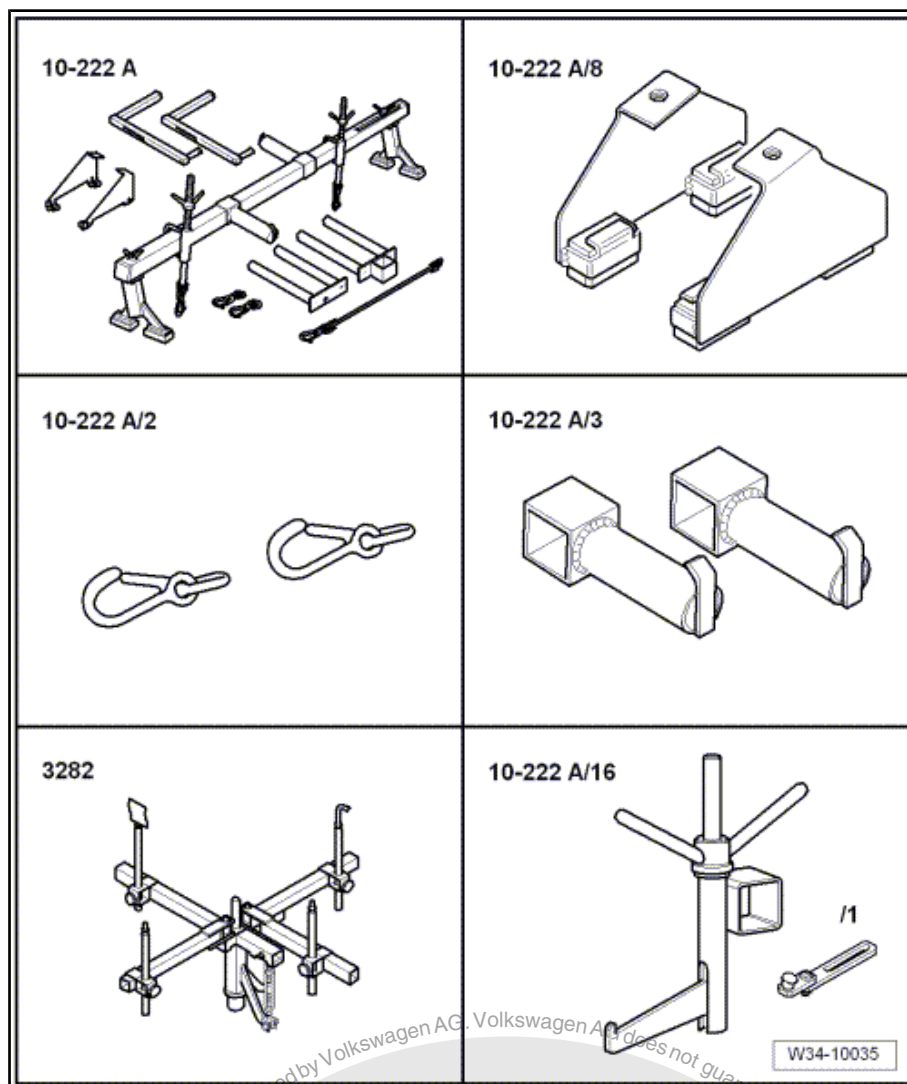


- ◆ Punch - VW412-
- ◆ Adapter - 10-222A/25- or flat iron, 350 x 30 x 5
- ◆ - 4- Counter-support - 22/4-
- ◆ Mandrel - T10027A-

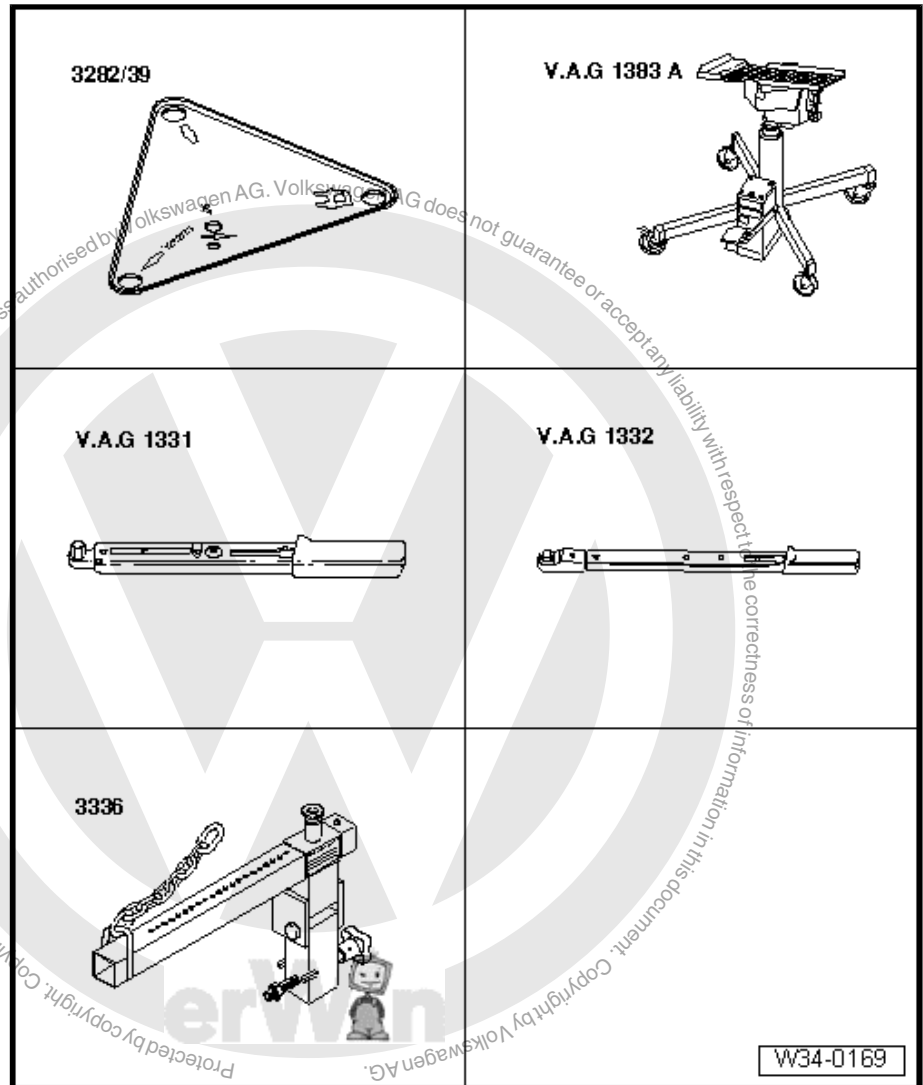


- ◆ Pressing Support - T10083-

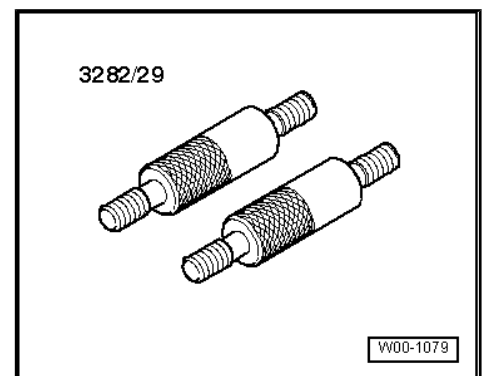




- ◆ Engine Support Bridge - 10-222A-
- ◆ Additional Hooks - 10-222A/2-
- ◆ Engine Support Adapter - 10-222A/3-
- ◆ Engine Support Adapter - 10-222A/8-
- ◆ Engine Support Adapter - 10-222A/16-
- ◆ Transmission Support - 3282-

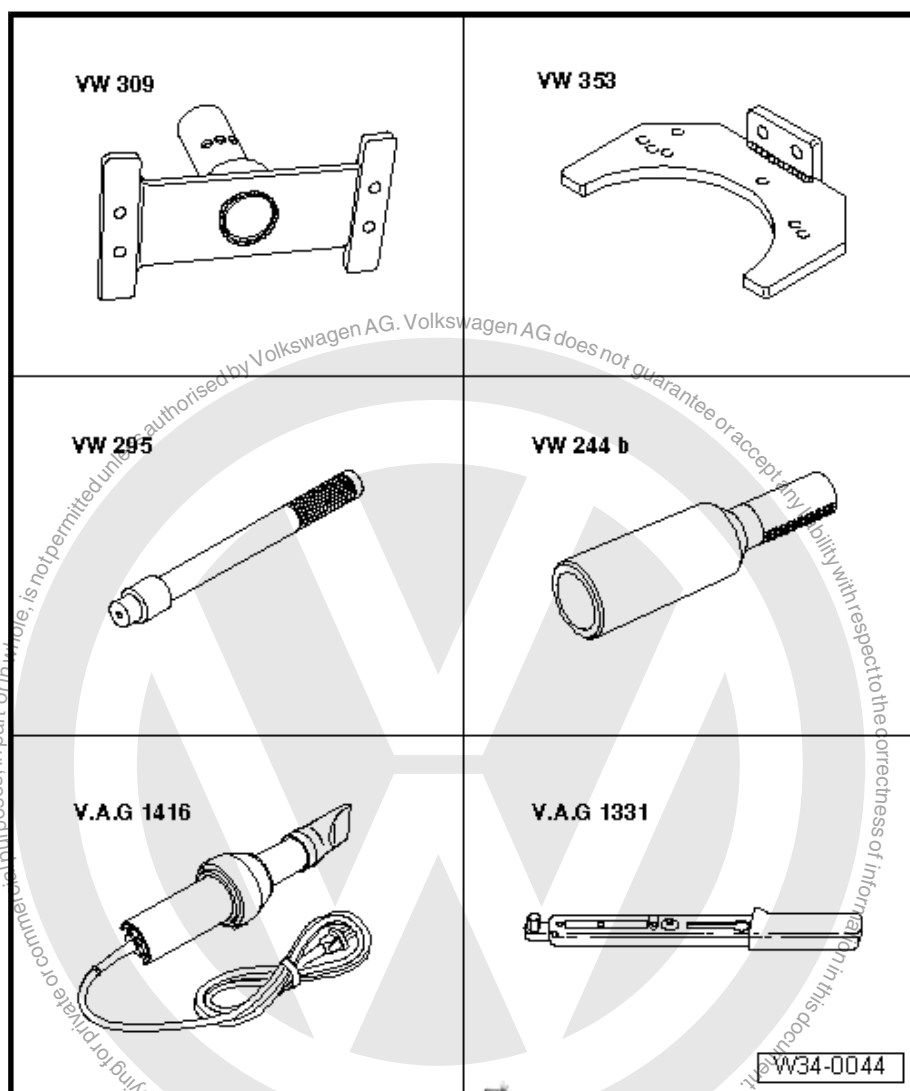
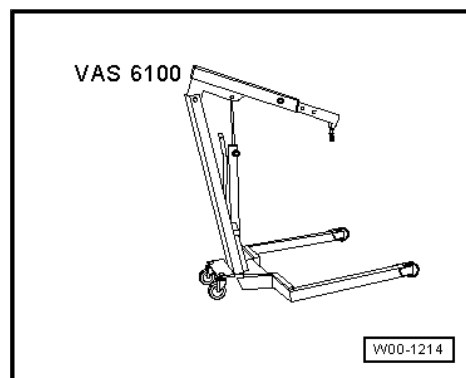


- ◆ Torque Wrench - VAG1331-
- ◆ Torque Wrench - VAG1332-
- ◆ Engine/Transmission Jack - VAG1383A-
- ◆ Adjusting Plate - 3282/39-
- ◆ Transmission Support Jig - 3336-
- ◆ Bolt - 3282/29-

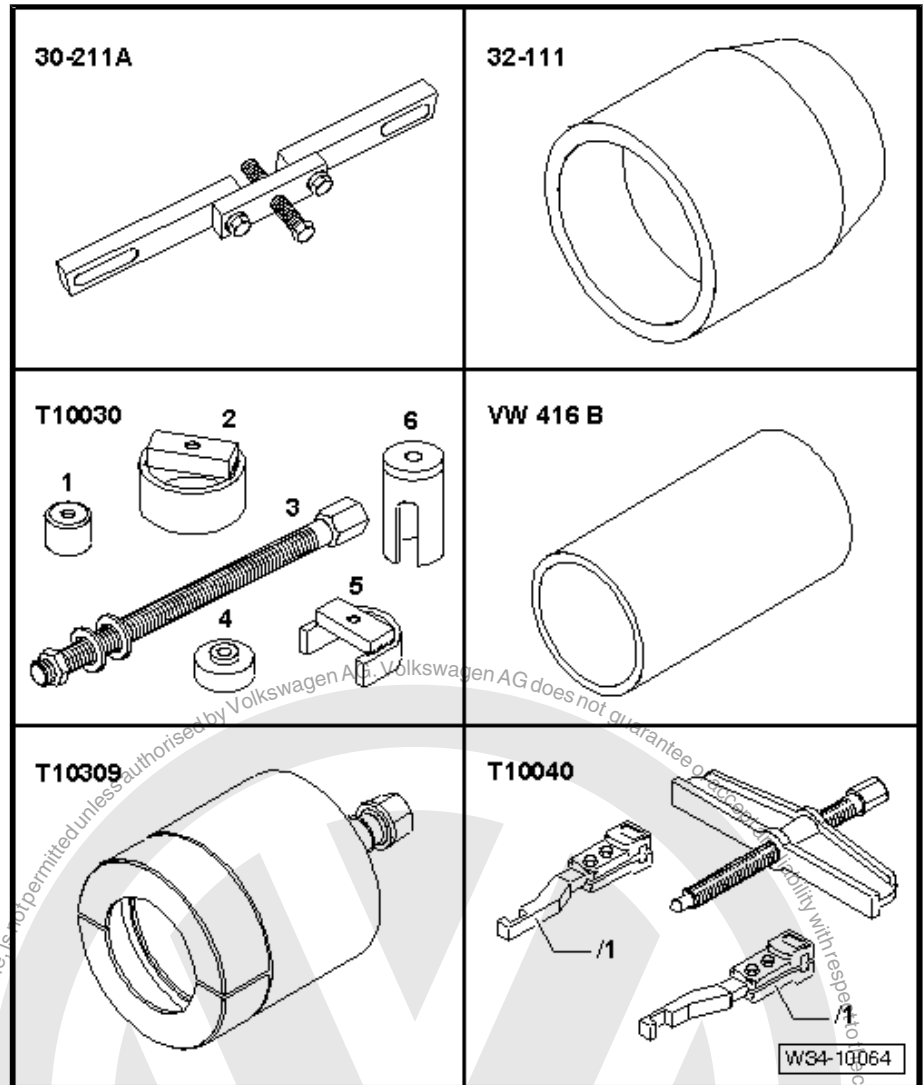




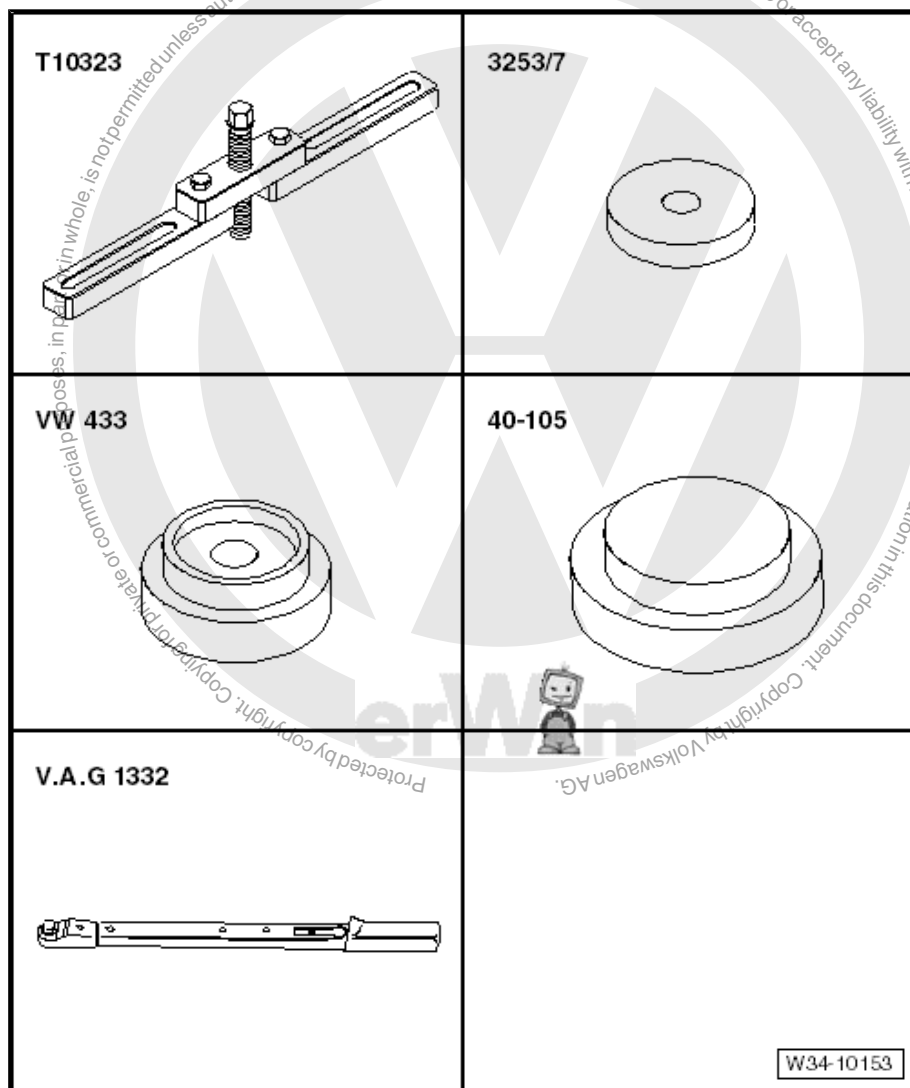
◆ Shop Crane - VAS6100-



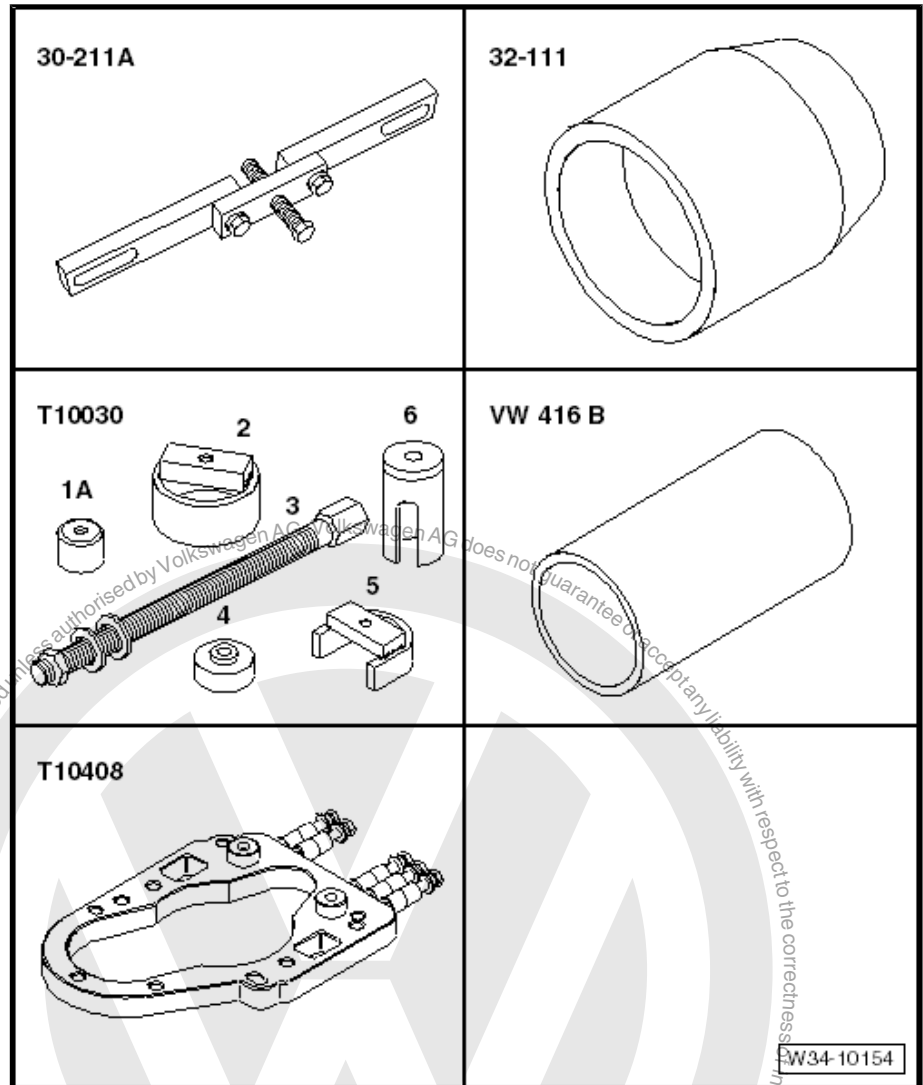
- ◆ Driving Sleeve - VW244B-
- ◆ Drift - VW295-
- ◆ Retaining Plate - VW309-
- ◆ Transmission Support - VW353-
- ◆ Torque Wrench - VAG1331-
- ◆ Hot Air Blower - VAG1416-



- ◆ Support Bridge - 30-211A-
- ◆ Seal Driver - 32-111-
- ◆ Thrust Piece - T10030/4- from Assembly Tool - T10030-
- ◆ Two-Arm Puller - T10040-
- ◆ with the Hook - T10040/2A-
- ◆ Thrust Piece - T10040/3-
- ◆ Puller - T10309-
- ◆ Pipe - VW416B-



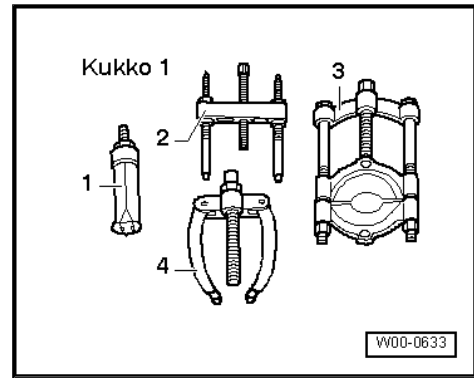
- ◆ Support Bridge - T10323-
- ◆ Torque Wrench - VAG1332-
- ◆ Thrust Piece - VW433-
- ◆ Subframe Support Assembling Device - 3253/7-



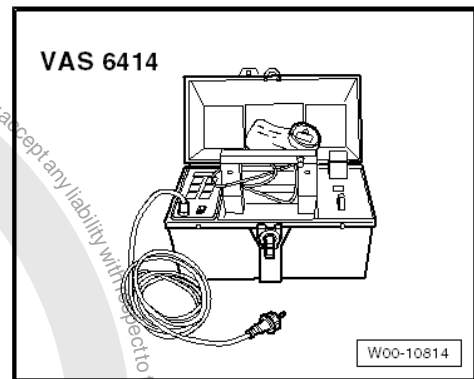
- ◆ Support Bridge - 30-211A-
- ◆ Seal Driver - 32-111-
- ◆ Thrust Piece - T10030/4- from Assembly Tool - T10030-
- ◆ Removal Plate - T10408-
- ◆ Thrust Piece - T10408/2-
- ◆ Hex Collar Bolt M7 x 35 And Washer (components of the Puller - T10408-)
- ◆ Straps - T10408/3-
- ◆ Pipe - VW416B-

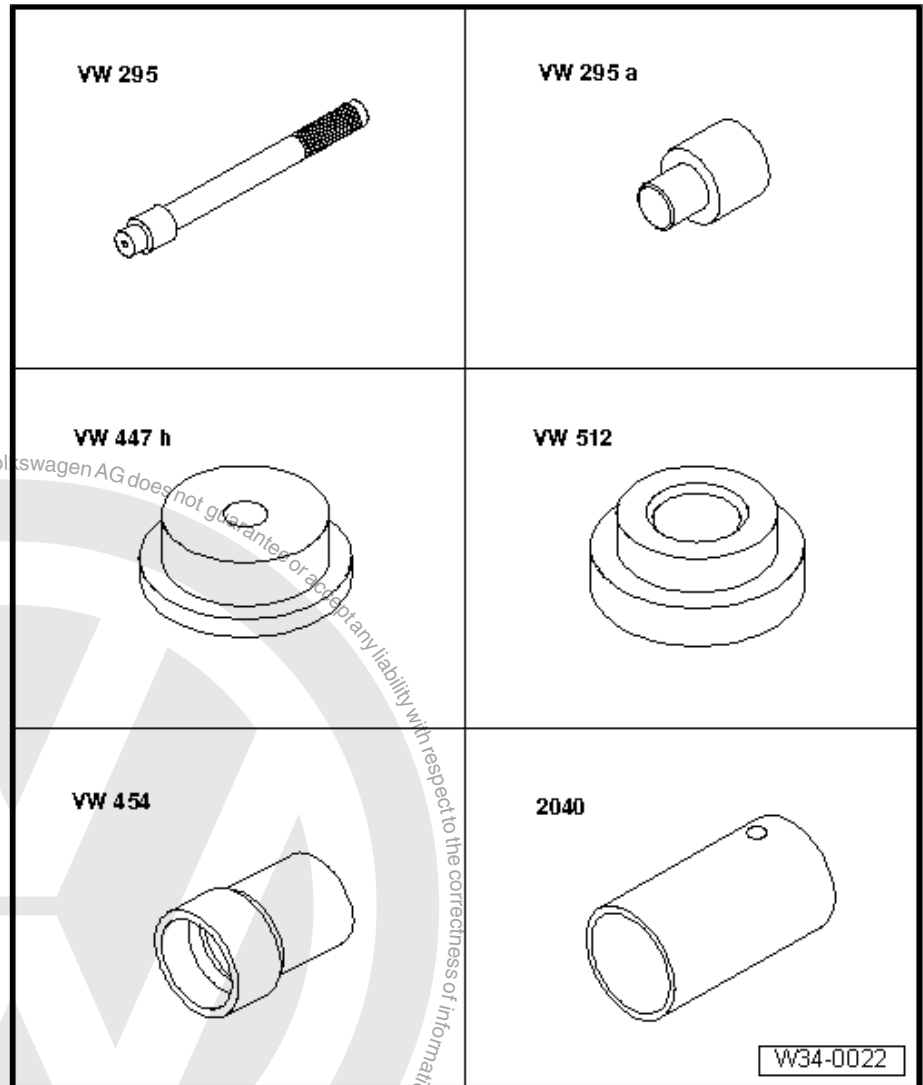


- ◆ -2- Puller - 18/1- (two pieces)

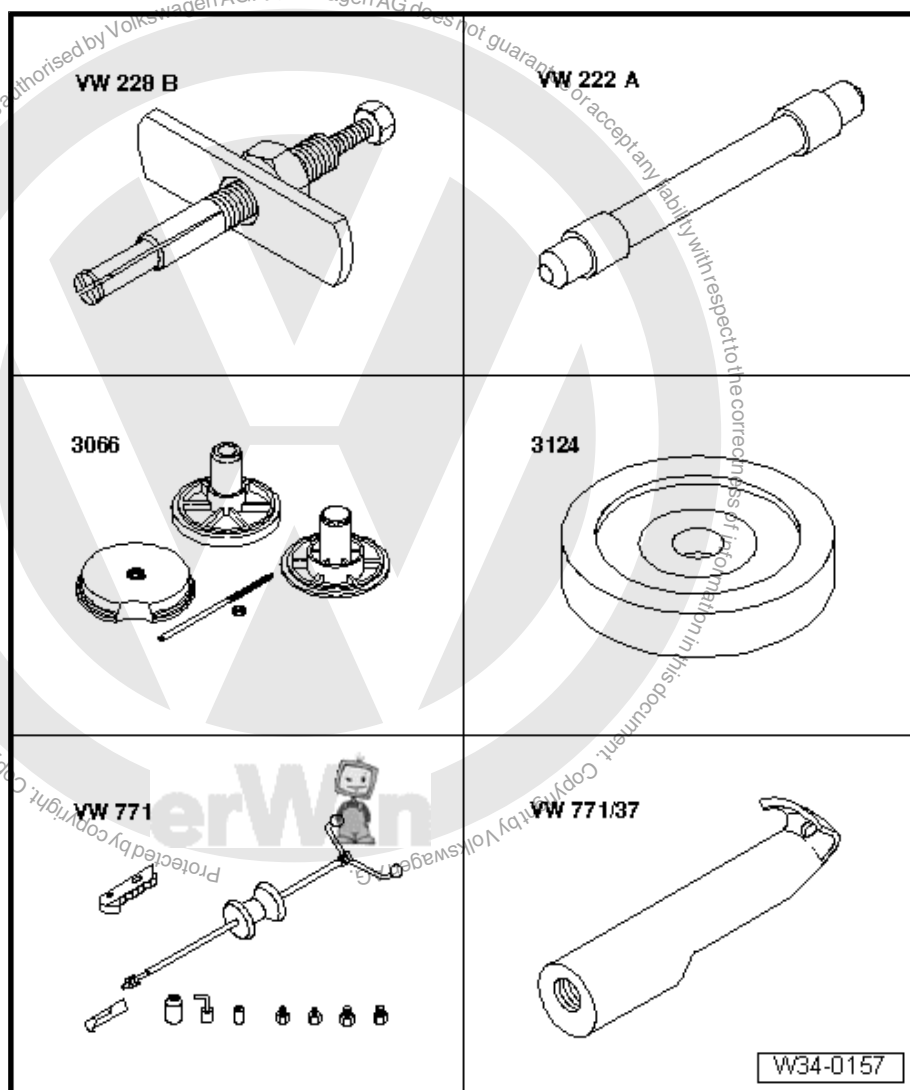


- ◆ Inductive Heater - VAS6414





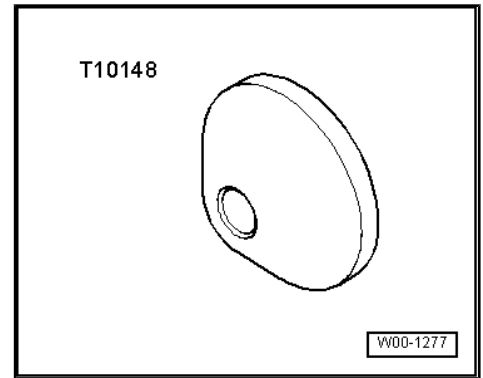
- ◆ Drift - VW295-
- ◆ Engine Support Adapter - VW295A-
- ◆ Pressure Washer - VW447H-
- ◆ Thrust Piece - VW454-
- ◆ Pressure Washer - VW512-
- ◆ Pipe - 2040-



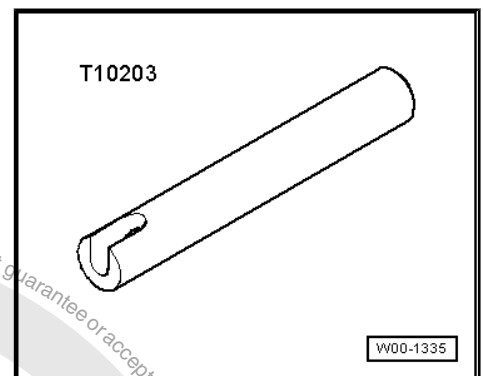
- ◆ Drift - VW222A- (not needed with this transmission)
- ◆ Puller - VW228B- (not needed with this transmission)
- ◆ Seal Installer Set - Rear Differential - 3066- (spindle)
- ◆ Thrust Pad - 3124- (the seal and sleeve are in two pieces)
- ◆ Slide Hammer-Complete Set - VW771- (the seal and sleeve are a single piece)
- ◆ Additional Part For VW771 - VW771/37- (the seal and sleeve are a single piece)



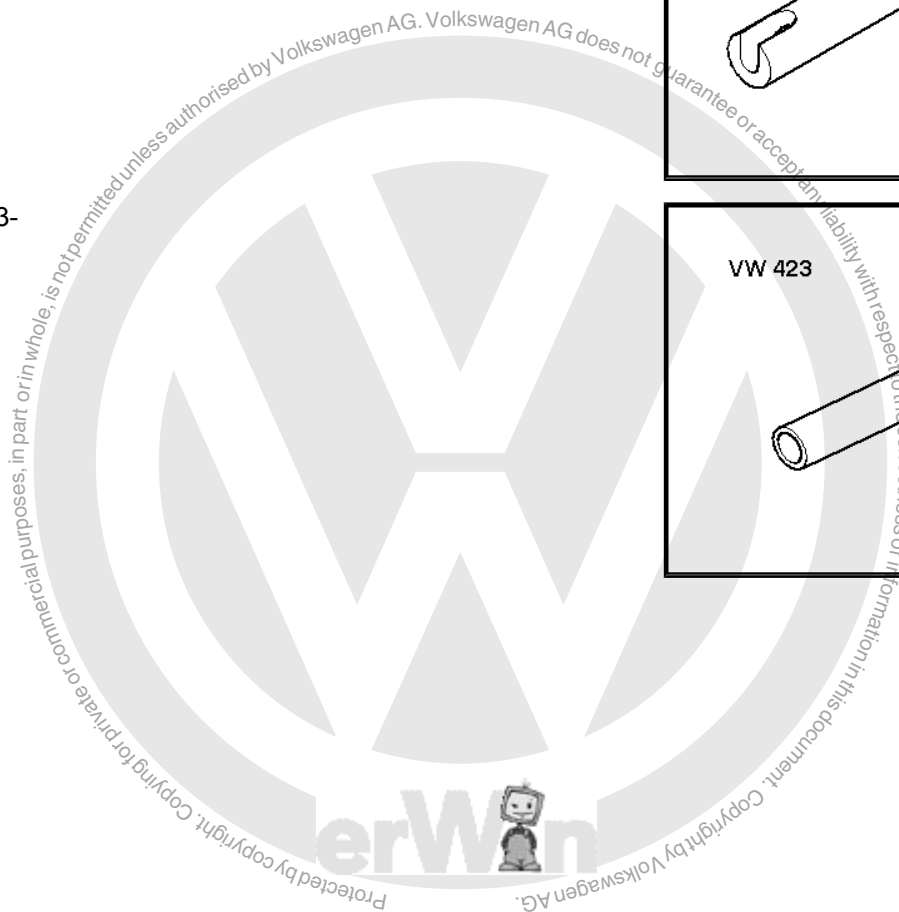
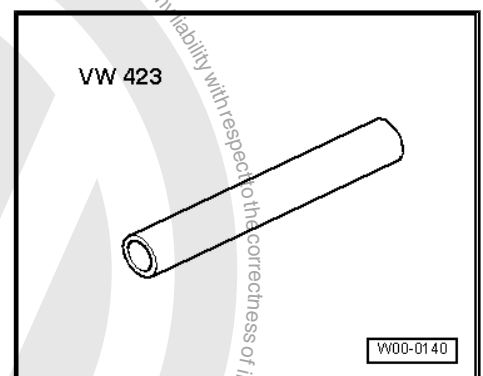
- ◆ Thrust Piece - T10148- (the seal and sleeve are a single piece)

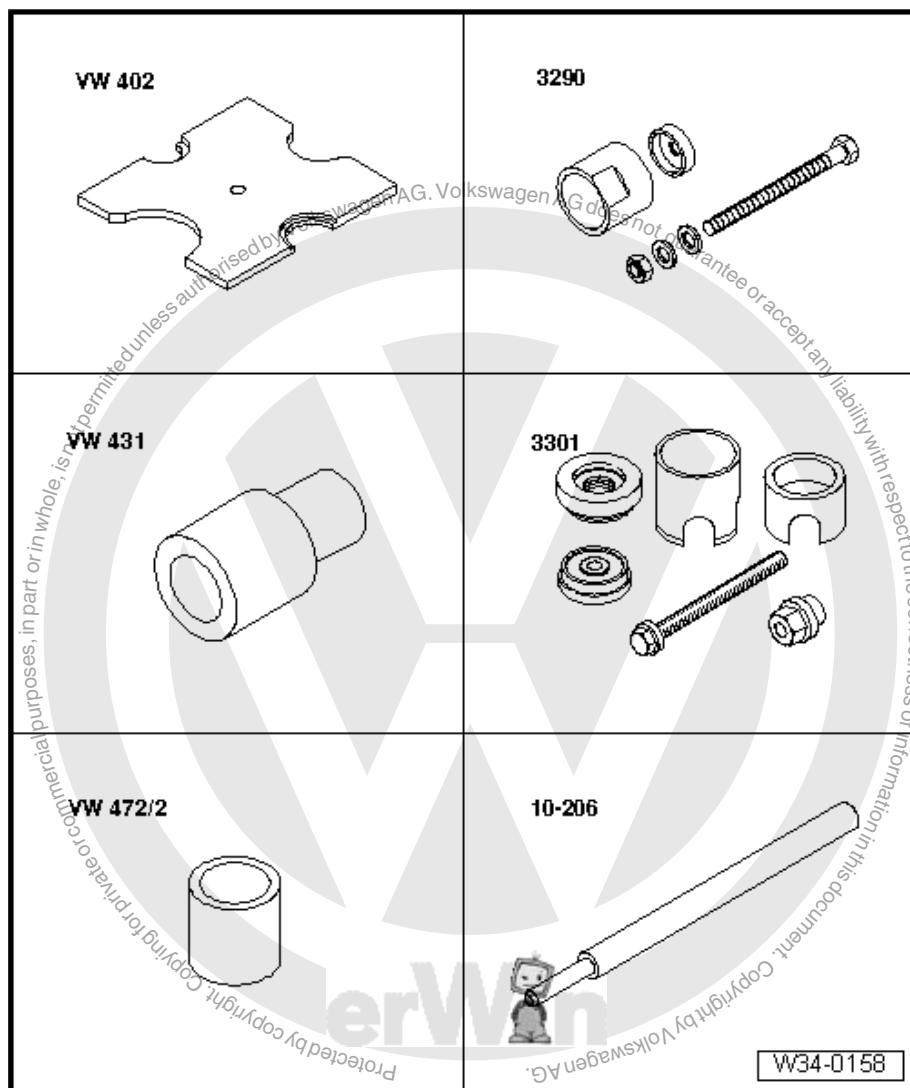


Pipe - T10203-

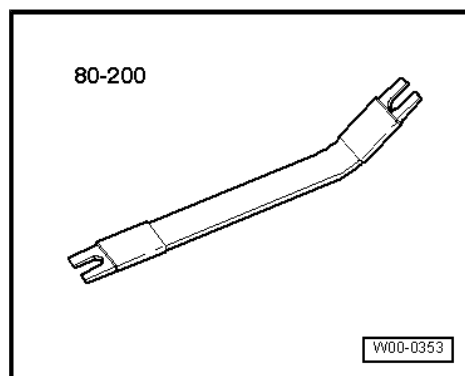


Pipe - VW423-



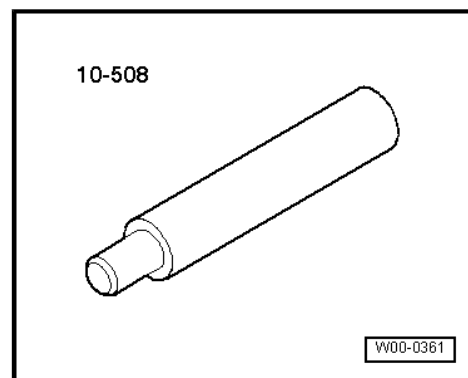


- ◆ Pressure Plate - VW402-
- ◆ Thrust Piece - VW431-
- ◆ Spacer - VW472/2-
- ◆ Thrust Piece - 3290/1-
- ◆ Subframe Support Assembling Device - 3301-
- ◆ Drift - 10-206-
- ◆ Pry Lever - 80-200-

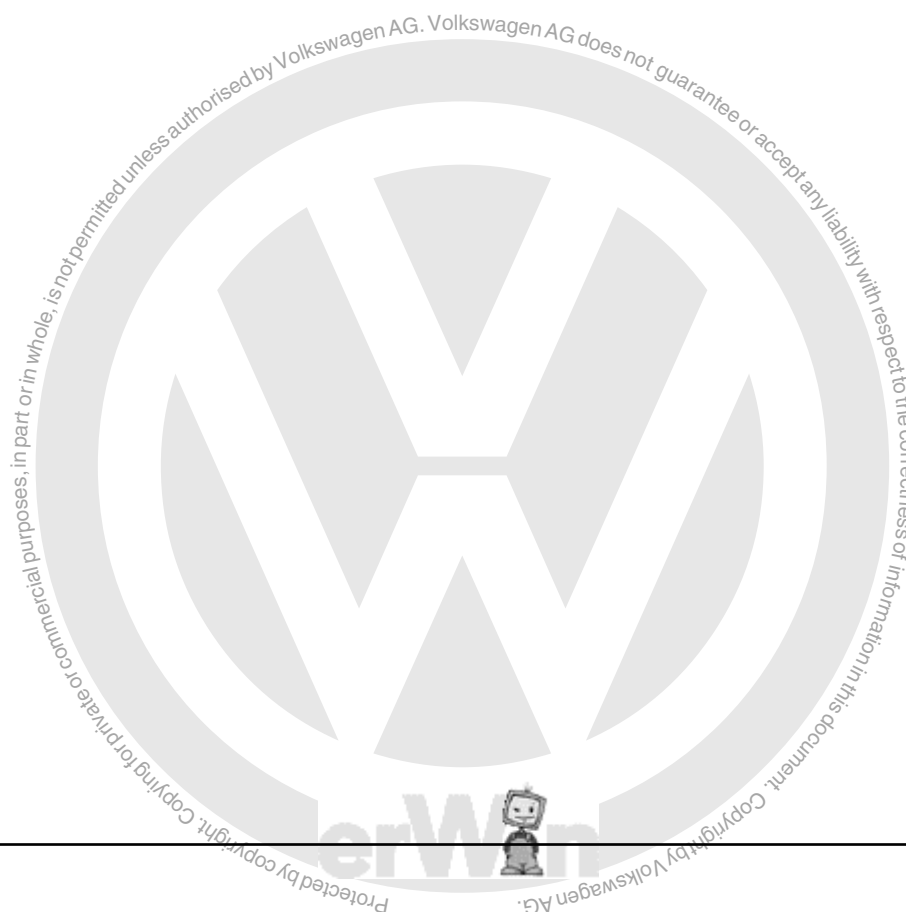
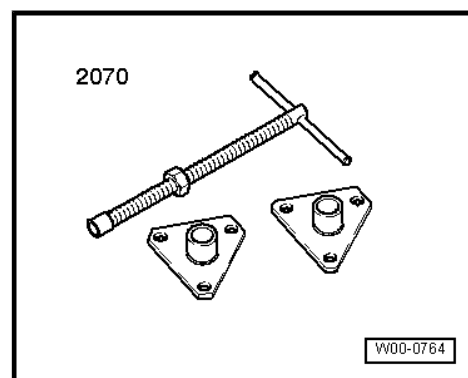




◆ Assembly Mandrel - 10-508-



◆ Tensioner - 2070-

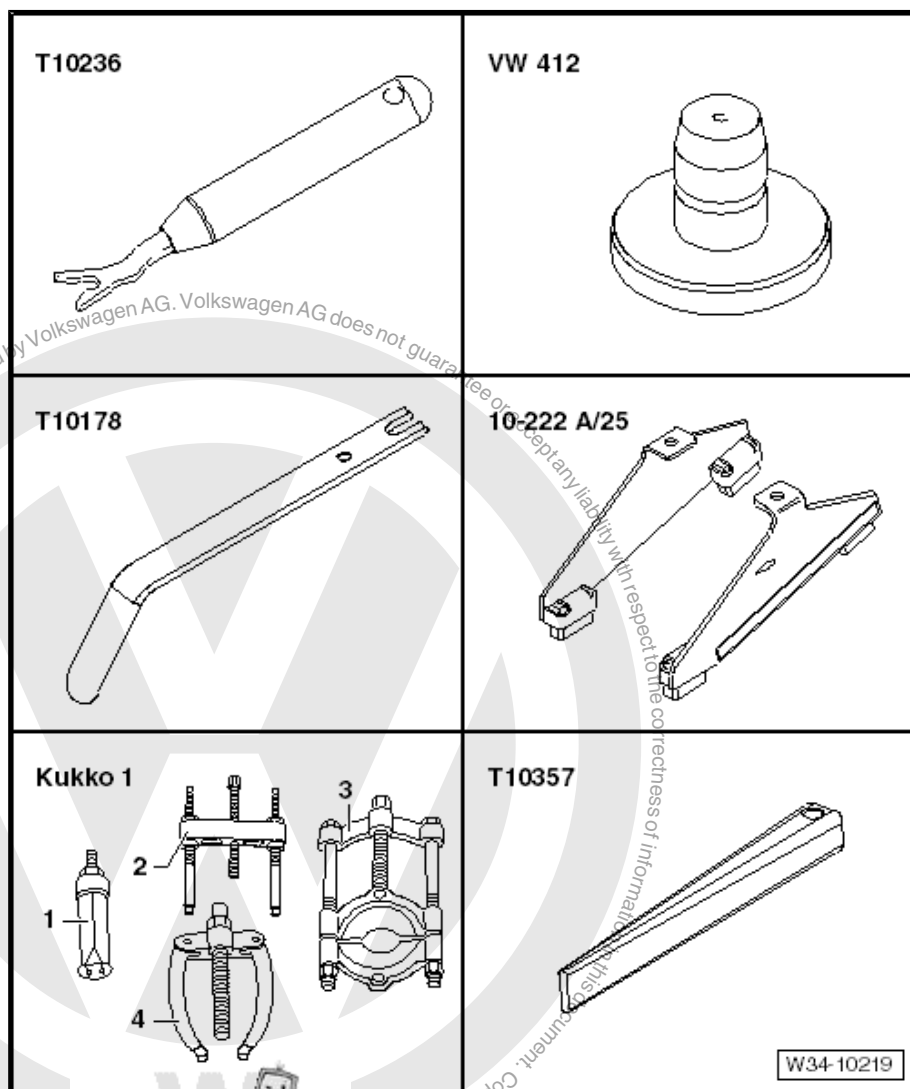
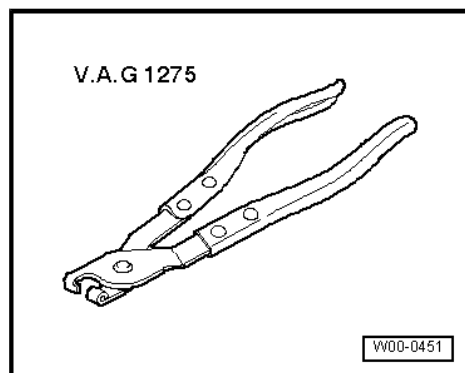




12 Special Tools

Special tools and workshop equipment required

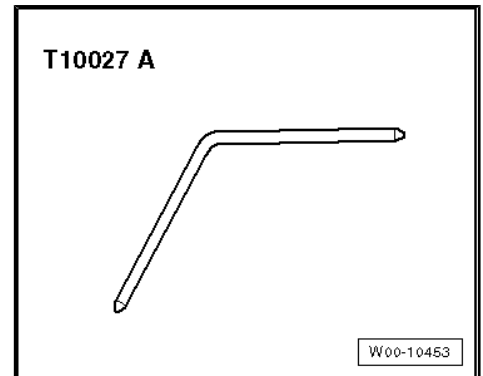
- ◆ Hose Clamp Pliers - VAG1275-



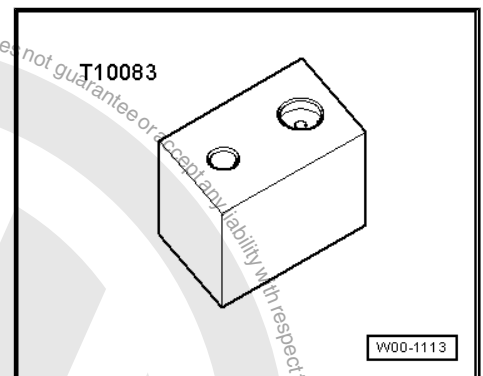
- ◆ Release Tool - T10236-
- ◆ Assembly Tool - T10178- or flat iron, 200 x 25 x 5
- ◆ Wedge Tool - T10357-



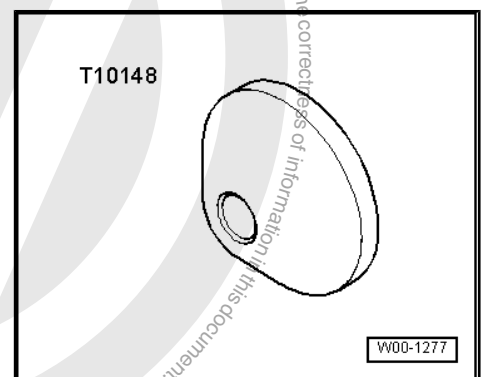
- ◆ Punch - VW412-
- ◆ Adapter - 10-222A/25- or flat iron, 350 x 30 x 5
- ◆ - 4- Counter-Support - 22/4-
- ◆ Mandrel - T10027A-



- ◆ Pressing Support - T10083-



Thrust Piece - T10148-

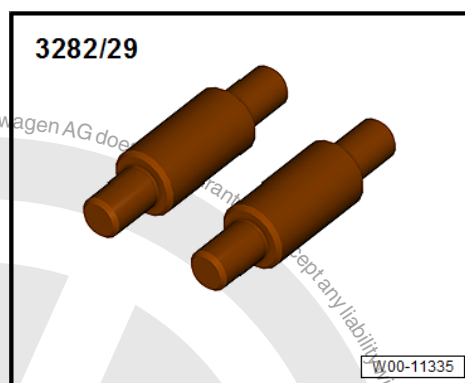


- ◆ Spindle from the Seal Installer - Driver Set - 3066- or bolt M8 x 105

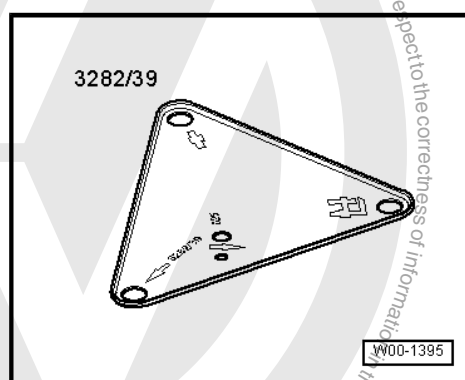


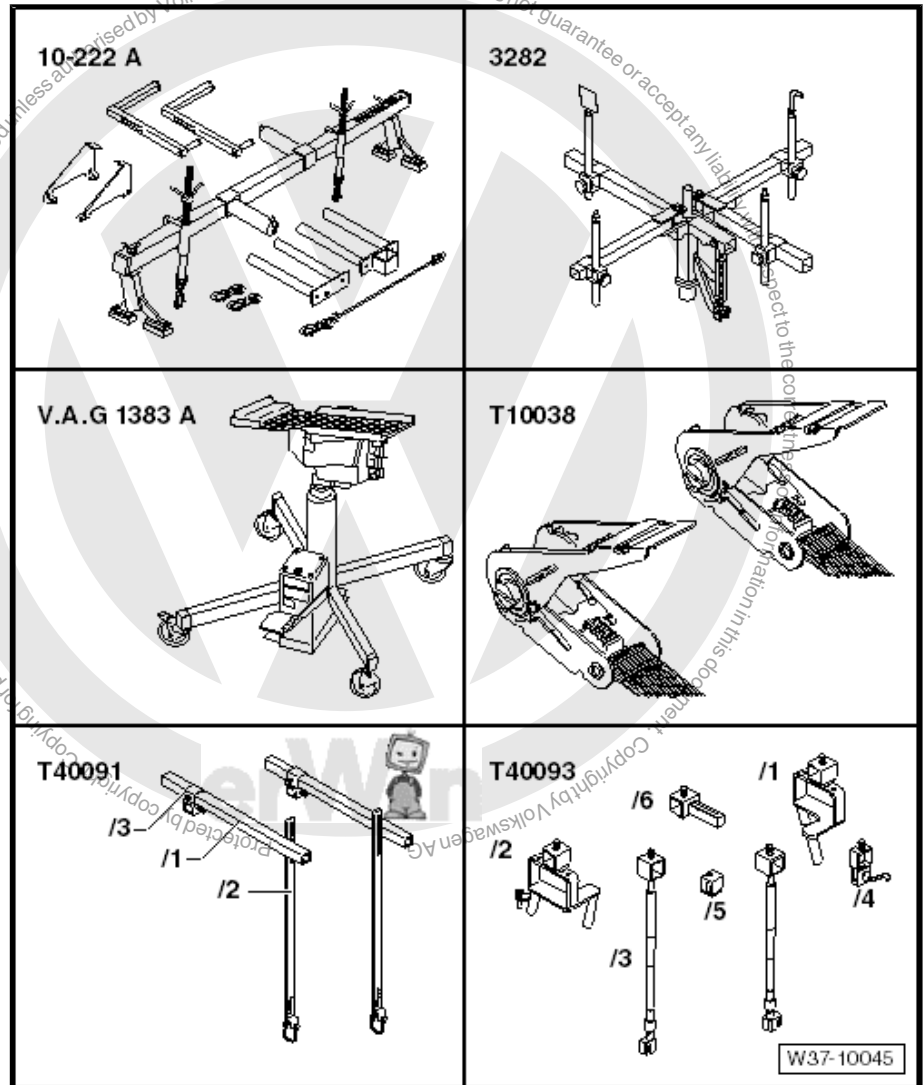


◆ Transmission Support - Pins 29 - 3282/29-

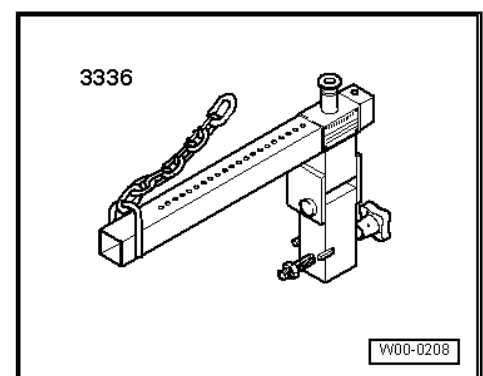


◆ Adjusting Plate - 3282/39-



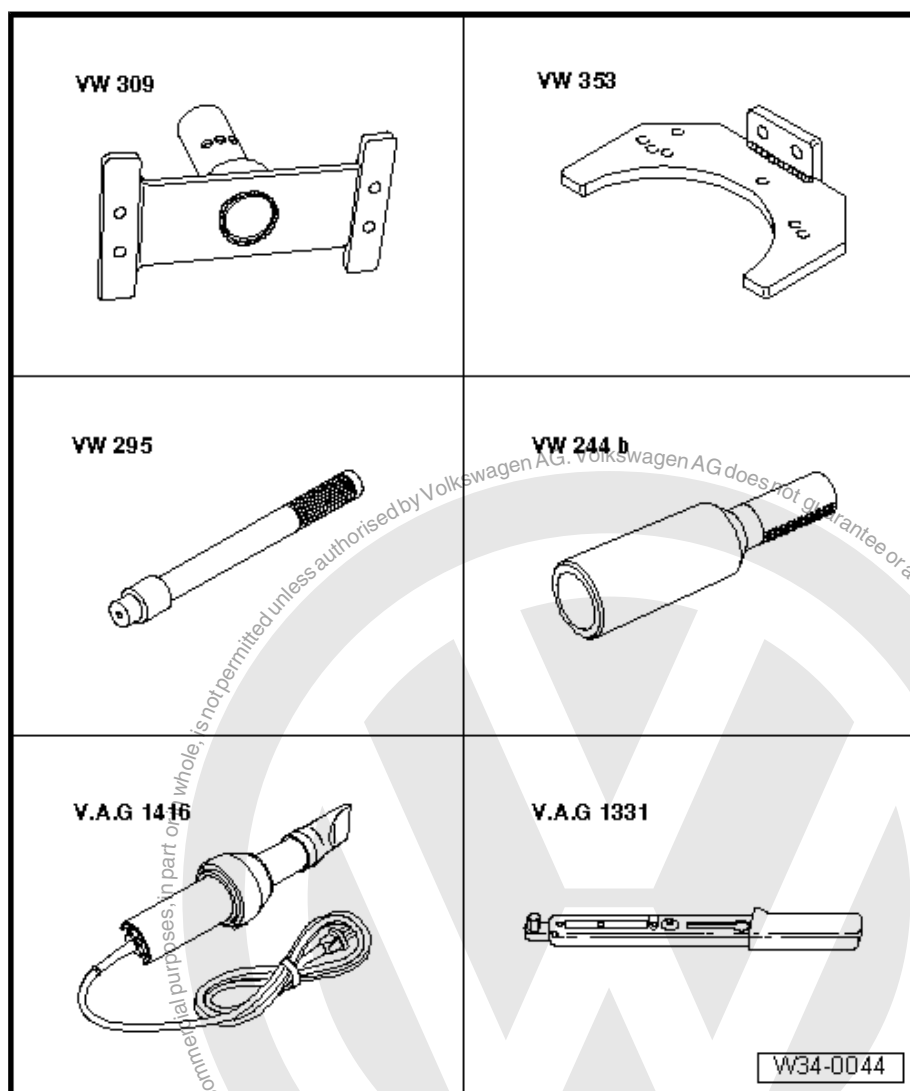
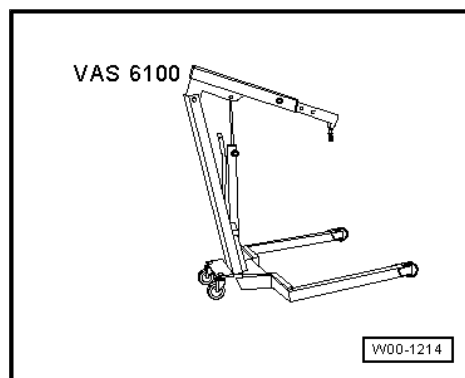


- ◆ Tensioning Strap - T10038-
- ◆ Engine Support Basic Set - T40091-
- ◆ Engine Support Supplement Set - T40093-
- ◆ Engine/Transmission Jack - VAG1383A-
- ◆ Engine Support Bridge - 10-222A-
- ◆ Transmission Support - 3282-
- ◆ Transmission Support Jig - 3336-

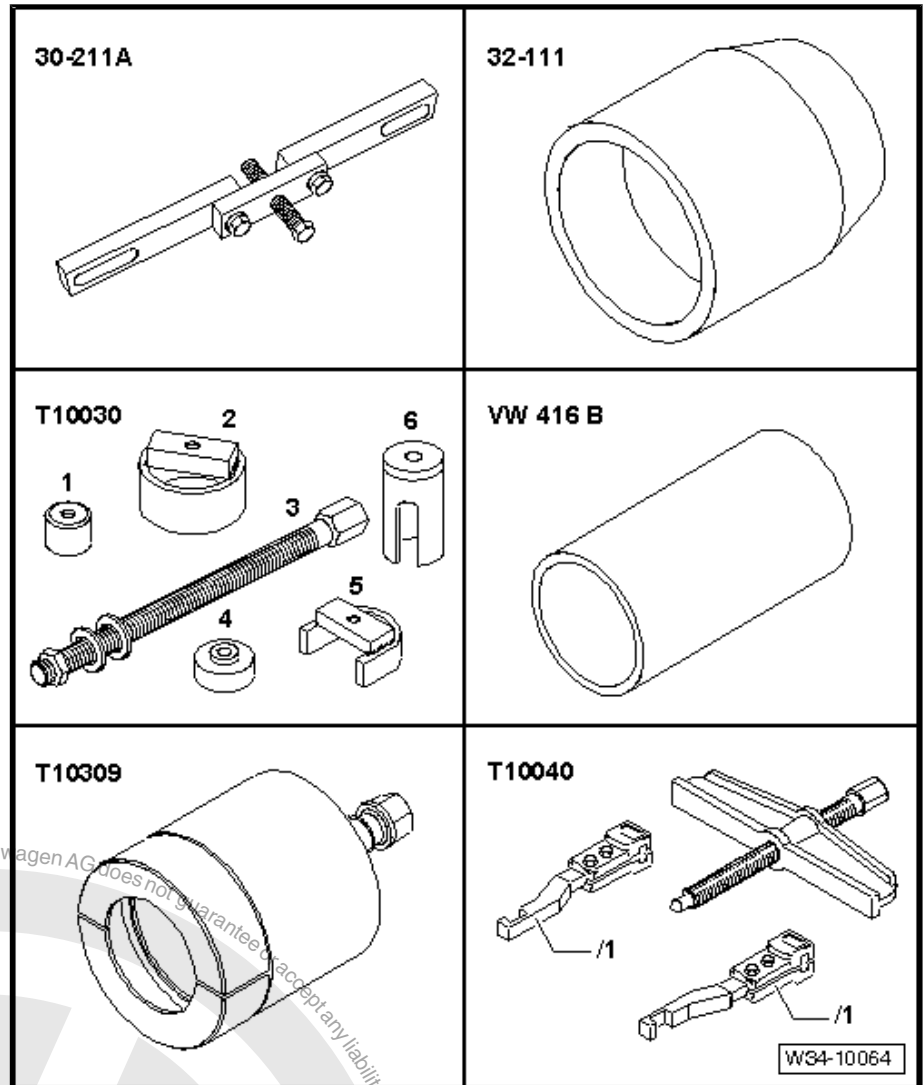




◆ Shop Crane - VAS6100-

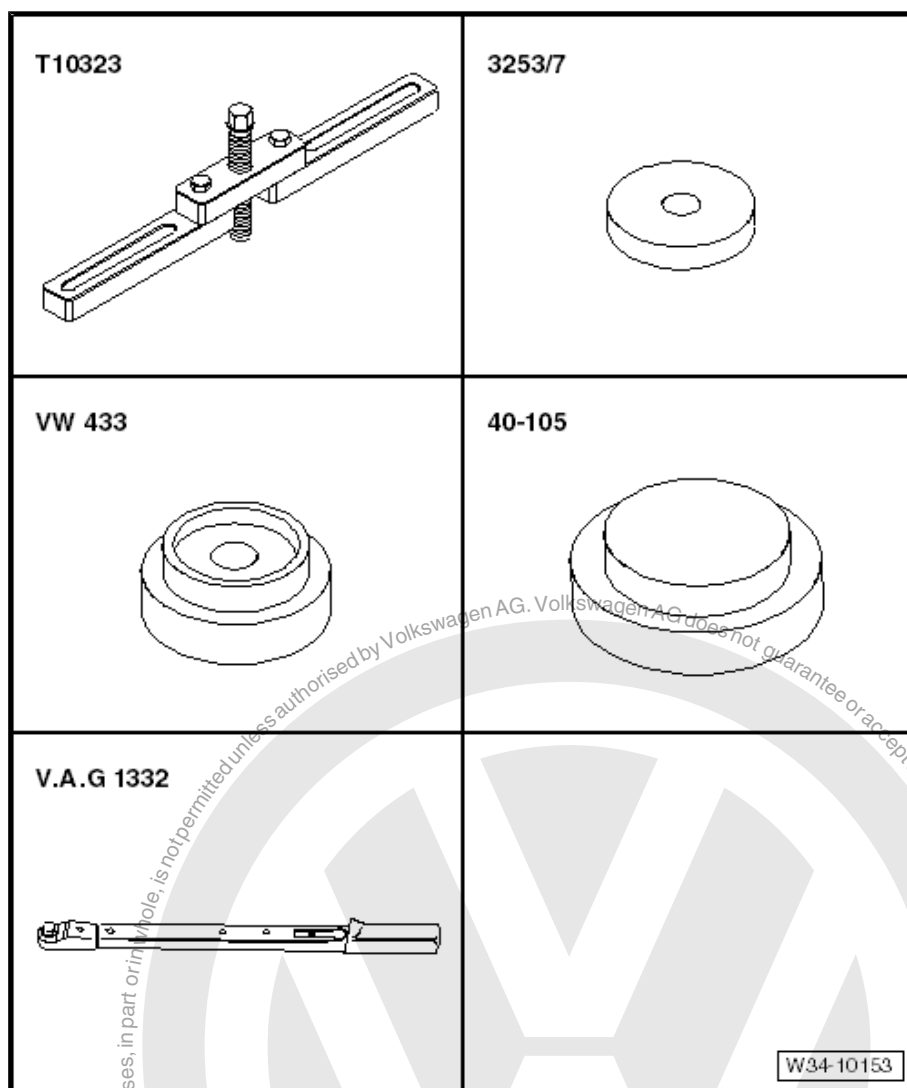


- ◆ Torque Wrench - VAG1331-
- ◆ Hot Air Blower - VAG1416-
- ◆ Driving Sleeve - VW244B-
- ◆ Drift - VW295-
- ◆ Retaining Plate - VW309-
- ◆ Transmission Support - VW353-

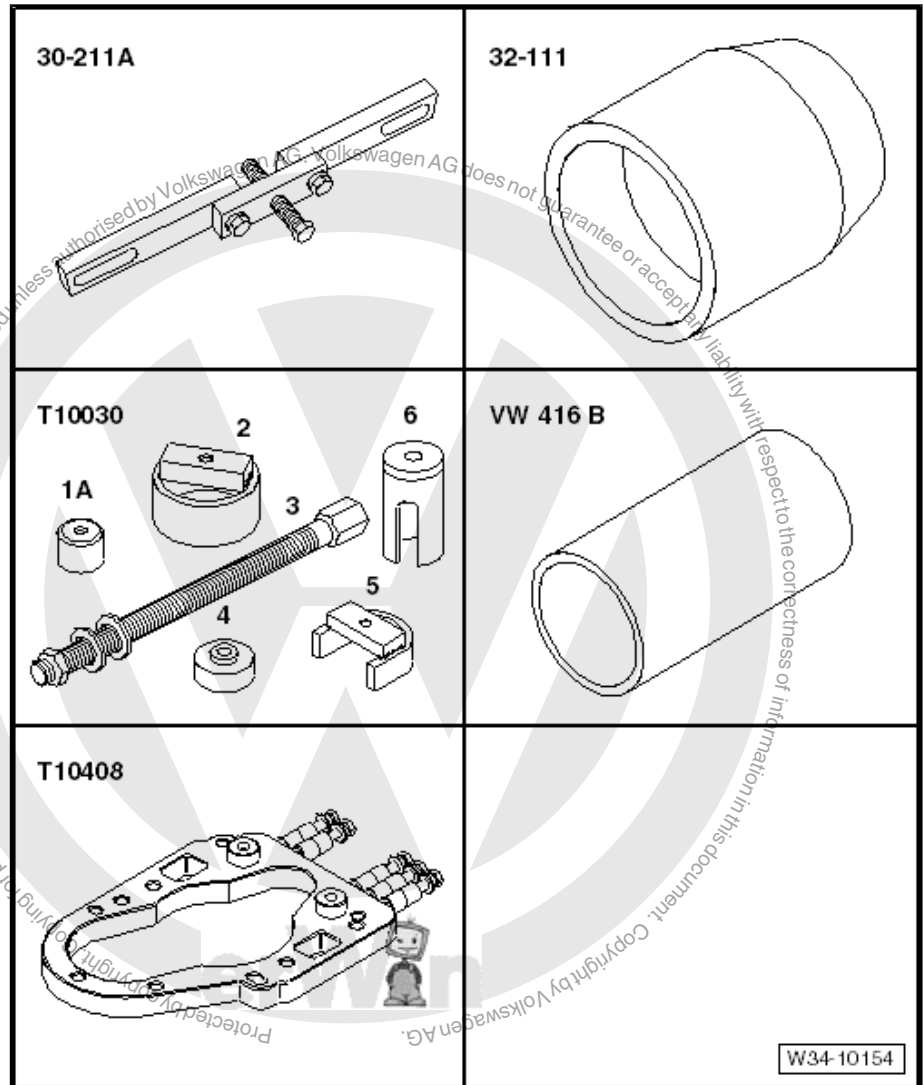


- ◆ Two-Arm Puller - T10040-
- ◆ Hook - T10040/2A-
- ◆ Thrust Piece - T10040/3-
- ◆ Puller - T10309-
- ◆ Thrust Piece - T10030/4- from Assembly Tool - T10030-
- ◆ Pipe - VW416B-
- ◆ Support Bridge - 30-211A-
- ◆ Seal Driver - 32-111-





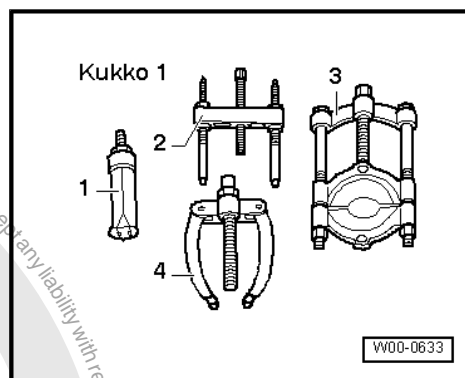
- ◆ Support Bridge - T10323-
- ◆ Torque Wrench - VAG1332-
- ◆ Thrust Piece - VW433-
- ◆ Subframe Support Assembling Device - 3253/7-



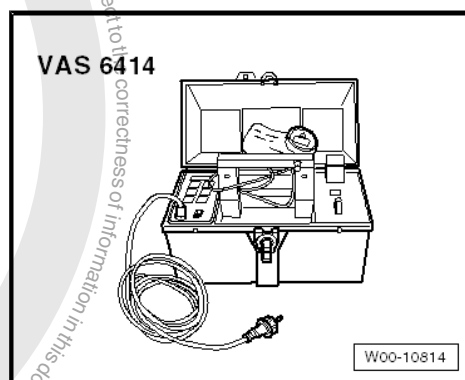
- ◆ Removal Plate - T10408-
- ◆ Hex Collar Bolt M7 x 35 And Washer (components of the Puller - T10408-)
- ◆ Thrust Piece - T10408/2-
- ◆ Straps - T10408/3-
- ◆ Thrust Piece - T10030/4- from Assembly Tool - T10030-
- ◆ Pipe - VW416B-
- ◆ Support Bridge - 30-211A-
- ◆ Seal Driver - 32-111-

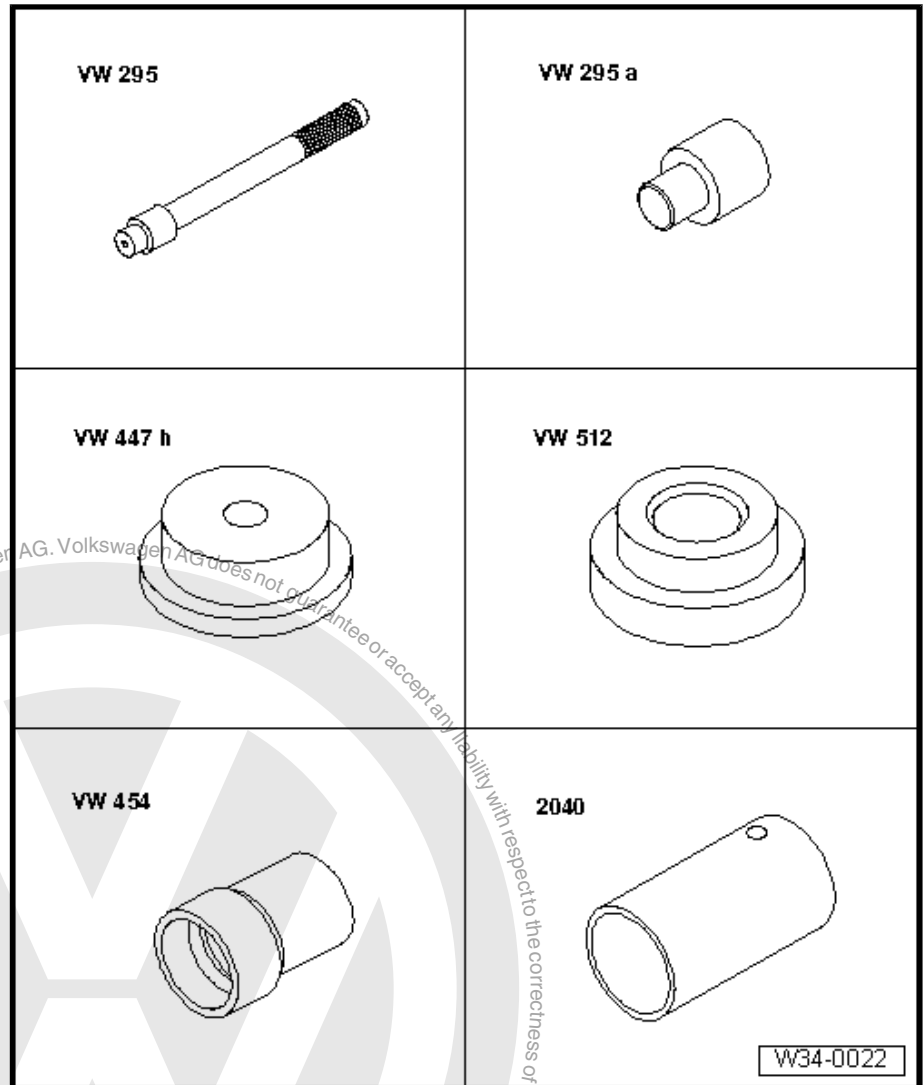


- ◆ -2- Puller - 18/1- (2 pieces)

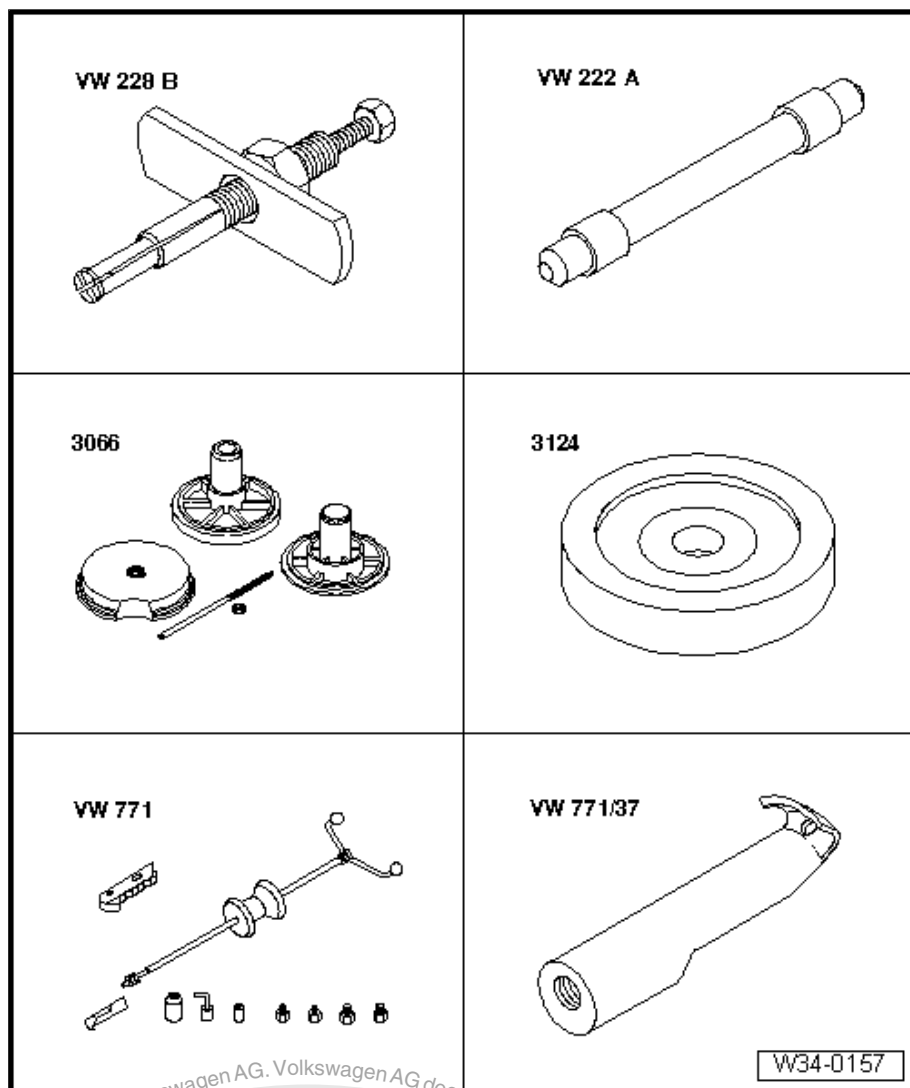


- ◆ Inductive Heater - VAS6414-



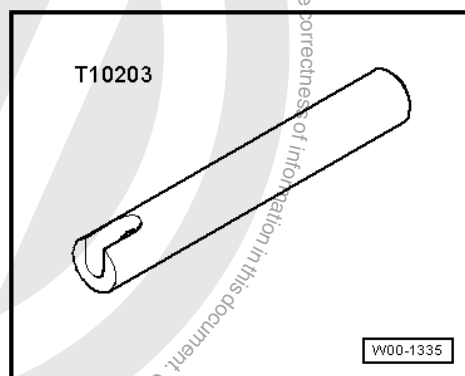


- ◆ Drift - VW295-
- ◆ Engine Support Adapter - VW295A-
- ◆ Pressure Washer - VW447H-
- ◆ Pressure Washer - VW512-
- ◆ Thrust Piece - VW454-
- ◆ Pipe - 2040-



- ◆ Drift - VW222A- (not needed with this transmission)
- ◆ Puller - VW228B- (not needed with this transmission)
- ◆ Seal Installer Set - Rear Differential - 3066- (spindle)
- ◆ Thrust Pad - 3124- (the seal and sleeve are in two pieces)
- ◆ Slide Hammer-Complete Set - VW771- (the seal and sleeve are a single piece)
- ◆ Additional Part For VW771 - VW771/37- (the seal and sleeve are a single piece)

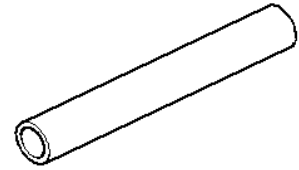
Pipe - T10203-





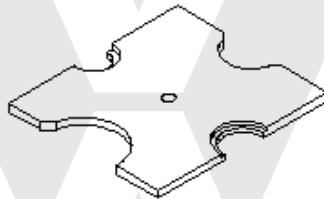
Pipe - VW423-

VW 423



W00-0140

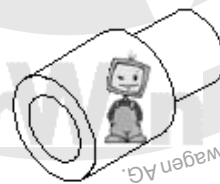
VW 402



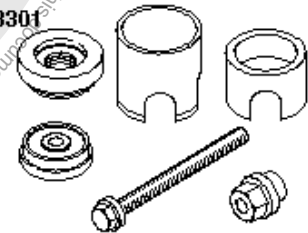
3290



VW 431



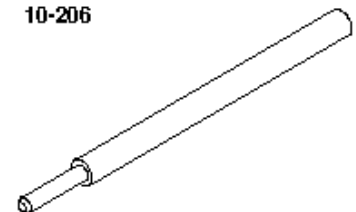
3301



VW 472/2



10-206

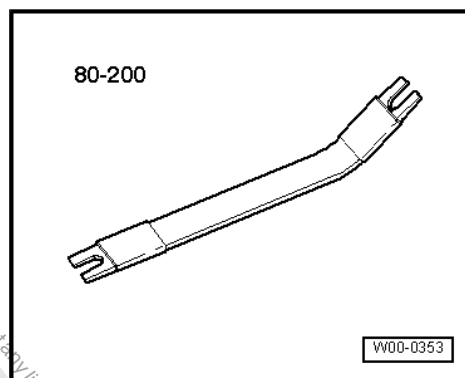


W34-0158

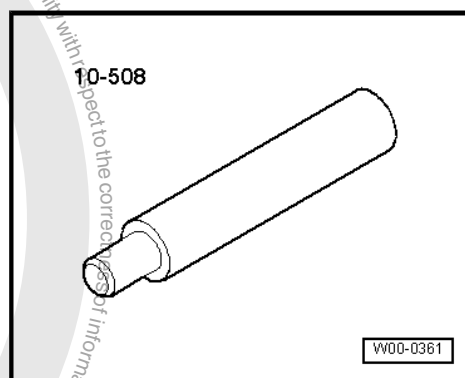
- ◆ Pressure Plate - VW402-
- ◆ Thrust Piece - VW431-
- ◆ Spacer - VW472/2-
- ◆ Drift - 10-206-
- ◆ Thrust Piece - 3290/1-
- ◆ Subframe Support Assembling Device - 3301-



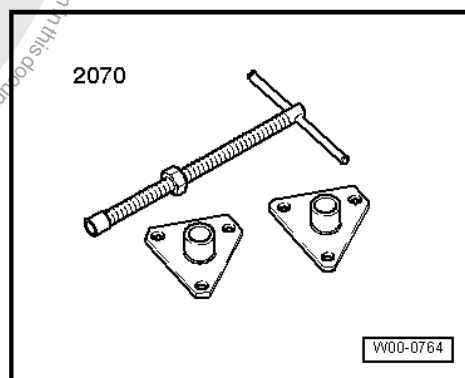
◆ Pry Lever - 80-200-



◆ Assembly Mandrel - 10-508-



◆ Tensioner - 2070-





35 – Gears, Shafts

1 Input Shaft

⇒ [“1.1 Input Shaft, Disassembling and Assembling”, page 241](#)

⇒ [“1.2 Input Shaft, Adjusting”, page 247](#)

⇒ [“1.3 Input Shaft Seal, Replacing”, page 250](#)

1.1 Input Shaft, Disassembling and Assembling

Special tools and workshop equipment required

- ◆ Press Piece - Rod - VW407-
- ◆ Press Piece - Multiple Use - VW447H-
- ◆ Press Piece - Rod - VW412-
- ◆ Press Piece - Shift Rod/Alternator - VW422-
- ◆ Press Plate - VW401-
- ◆ Press Piece - Rod - VW408A-
- ◆ Press Piece - 28x100mm - VW421-
- ◆ Press Piece - VW447I-
- ◆ Press Piece - Multiple Use - VW454-
- ◆ Press Piece - Multiple Use - VW510-
- ◆ Press Tube - 41-501-
- ◆ Puller - Kukko Quick Action Separating Tool - 12-75mm - Kukko 17/1-
- ◆ Press Plate - VW402-
- ◆ Inductive Heater - VAS6414-



Note

- ◆ *When installing new gear wheels or a new input shaft. Refer to ⇒ [“2.3 Codes, Transmission Allocation and Capacities”, page 3](#) and Parts Catalog.*
- ◆ *The input shaft must be adjusted because the position of the tapered roller bearing is affected when parts are replaced. Pay attention to the adjustment overview. Refer to ⇒ [“2 Adjustment Overview”, page 284](#).*
- ◆ *Replace both tapered roller bearings together.*
- ◆ *Wearing safety gloves, warm the bearing inner races, the gear wheels and the synchronizer hubs to approximately 100 °C (212 °F) using an Inductive Heater - VAS6414- before installing them.*

1 - Clutch Housing

2 - Outer Race/Tapered Roller Bearing

- ☐ Removing. Refer to [⇒ Fig. "Removing the Outer Race/Tapered Roller Bearing", page 243](#)
- ☐ Installing. Refer to [⇒ Fig. "Installing the Outer Race/Tapered Roller Bearing", page 244](#)

3 - Bearing Inner Race/Taper Roller Bearing

- ☐ Removing. Refer to [⇒ Fig. "Removing the Bearing Inner Race/Taper Roller Bearing", page 244](#)
- ☐ Installing. Refer to [⇒ Fig. "Installing the Bearing Inner Race/Taper Roller Bearing", page 244](#)

4 - Input Shaft

- ☐ Adjusting. Refer to [⇒ "1.2 Input Shaft, Adjusting", page 247](#)

5 - 3rd Gear Wheel

- ☐ Installed position: shoulder faces 4th gear
- ☐ Removing. Refer to [⇒ Fig. "Removing the 3rd Gear Wheel", page 245](#)
- ☐ Installing. Refer to [⇒ Fig. "Installing 3rd Gear Wheel", page 245](#)

6 - Circlip

- ☐ Always replace.

7 - 4th Gear Wheel

- ☐ Removing with the bearing inner race/tapered roller bearing and sleeve. Refer to [⇒ Fig. "Removing the 4th Gear Wheel with the Tapered Roller Bearing and Sleeve", page 244](#)
- ☐ Installing. Refer to [⇒ Fig. "Removing 4th Gear Wheel", page 245](#)
- ☐ The shoulder faces 3rd gear

8 - Bearing Inner Race/Taper Roller Bearing

- ☐ Removing with 4th gear wheel and sleeve. Refer to [⇒ Fig. "Removing the 4th Gear Wheel with the Tapered Roller Bearing and Sleeve", page 244](#)
- ☐ Installing. Refer to [⇒ Fig. "Installing the Bearing Inner Race/Taper Roller Bearing", page 245](#)

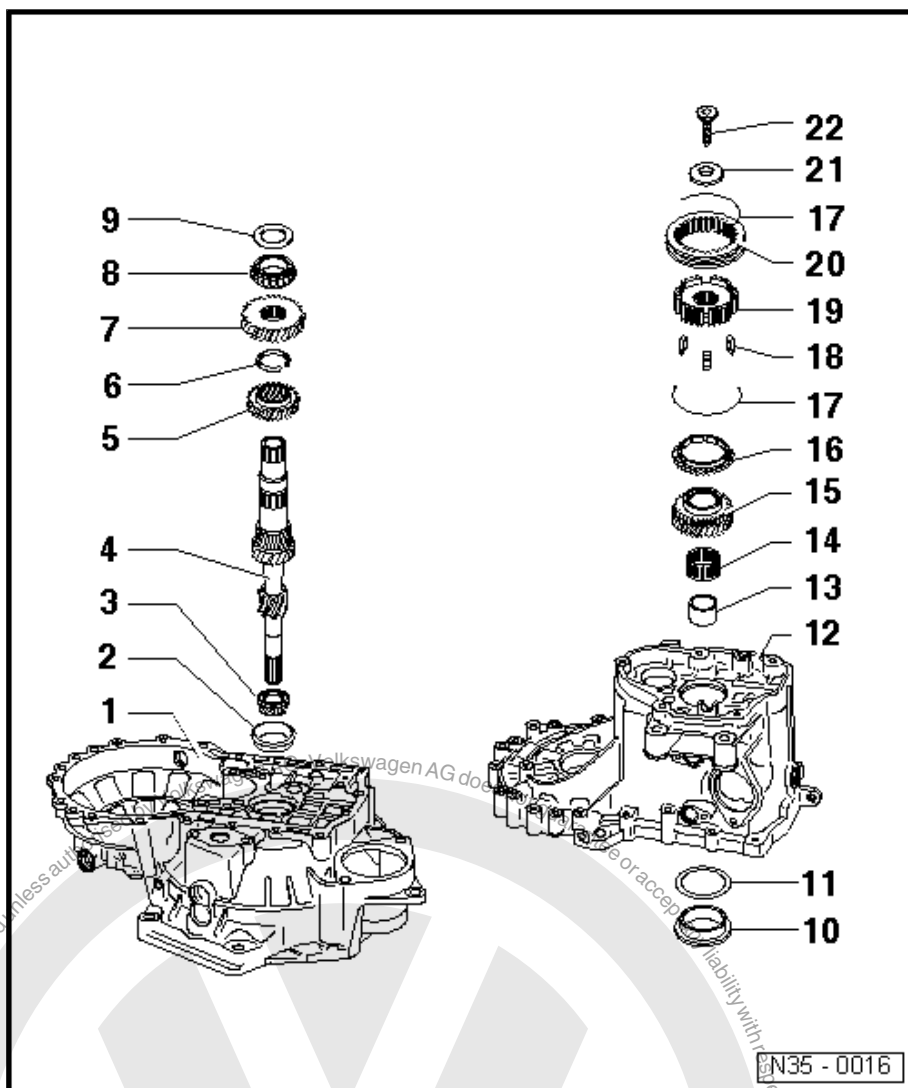
9 - Thrust Washer

10 - Outer Race/Tapered Roller Bearing

- ☐ Removing. Refer to [⇒ Fig. "Installing the Outer Race/Tapered Roller Bearing", page 246](#)
- ☐ Installing. Refer to [⇒ Fig. "Installing the Outer Race/Tapered Roller Bearing", page 246](#)

11 - Shim

- ☐ Selecting thickness. Refer to [⇒ "1.2 Input Shaft, Adjusting", page 247](#)





12 - Transmission Housing

13 - Sleeve

- ☐ For the needle bearing
- ☐ Pressing off with 4th gear drive gear and tapered roller bearing inner race. Refer to
⇒ [Fig. "“Removing the 4th Gear Wheel with the Tapered Roller Bearing and Sleeve”", page 244](#)
- ☐ Installing. Refer to ⇒ [Fig. "“Pressing on Sleeve for 5th Gear Needle Bearing”", page 246](#)
- ☐ Mount before installing the thrust washer -item 9- ⇒ [Item 9 \(page 242\)](#) .

14 - Needle Bearing

- ☐ For 5th gear

15 - 5th Gear Wheel

16 - 5th Gear Synchronizer Ring

- ☐ With cast locking pieces. Refer to
⇒ [Fig. "“5th Gear Synchronizer Ring with Cast Locking Pieces”", page 199](#)
- ☐ Checking for wear. Refer to ⇒ [Fig. "“Checking 5th gear synchronizer ring”", page 199](#)

17 - Spring

- ☐ Installation position. Refer to
⇒ [Fig. "“5th Gear Locking Collar/Synchronizer Hub Assembly”", page 247](#) .
- ☐ Offset springs are used as of transmission build date 05/11/01. Refer to
⇒ [Fig. "“Installation of Offset Springs -A-”", page 247](#)

18 - Locking Pieces (quantity: 3)

- ☐ Installation position. Refer to ⇒ [Fig. "“5th Gear Synchronizing”", page 246](#) .

19 - 5th Gear Synchronizer Hub

- ☐ Remove individually. Refer to
⇒ ["7.6 Assembly Sequence, Transmission Housing Cover and 5th Gear, Removing and Installing", page 185](#)
- ☐ Remove with the transmission housing. Refer to
⇒ ["7.7 Transmission, Assembly Sequence, Disassembling and Assembling", page 189](#) .

20 - 5th Gear Locking Collar

- ☐ Remove with the 5th gear synchronizer hub -item 19- ⇒ [Item 19 \(page 243\)](#)

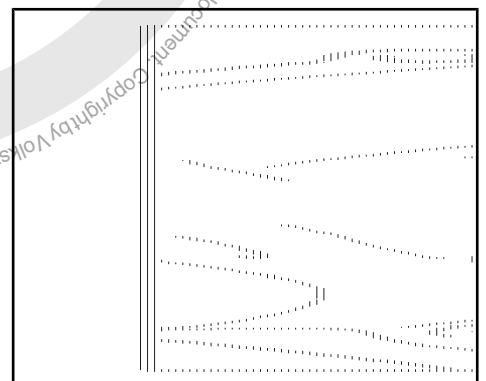
21 - Plate Spring

- ☐ Installation position. Refer to
⇒ [Fig. "“Installed Position of Plate Springs for 5th Gear Synchronizer Hub and Gear Securing Bolts”", page 200](#) .

22 - Screw -item 4- ⇒ [Item 4 \(page 181\)](#)

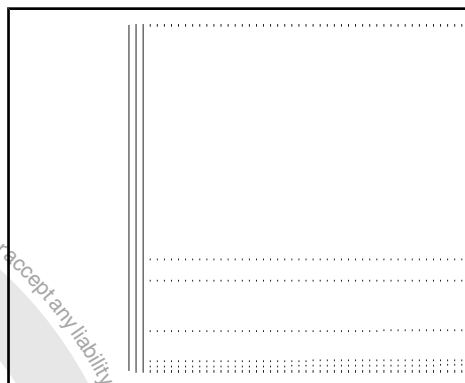
- ☐ Always replace.
- ☐ Holds in position with the adapter on the plate spring bolt head. Refer to
⇒ [Fig. "“Installed Position of Plate Springs for 5th Gear Synchronizer Hub and Gear Securing Bolts”", page 200](#)

Removing the Outer Race/Tapered Roller Bearing



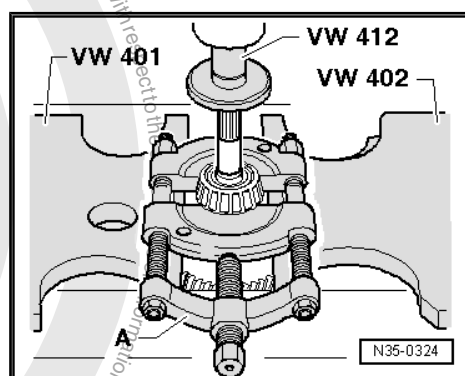


Installing the Outer Race/Tapered Roller Bearing

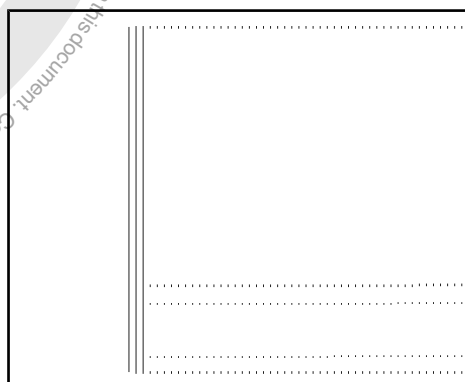


Removing the Bearing Inner Race/Taper Roller Bearing

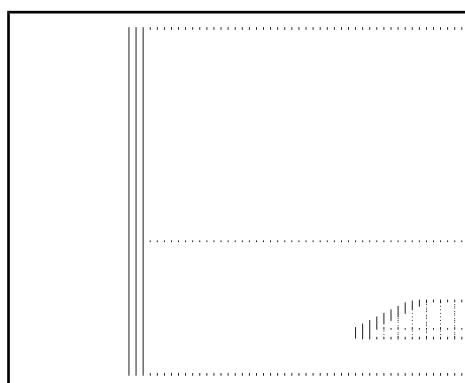
A - Puller - Quick Action Separating Tool - 12-75mm -Kukko 17/1-



Installing the Bearing Inner Race/Taper Roller Bearing



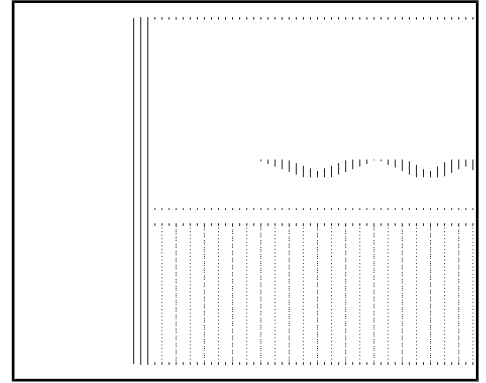
Removing the 4th Gear Wheel with the Tapered Roller Bearing and Sleeve





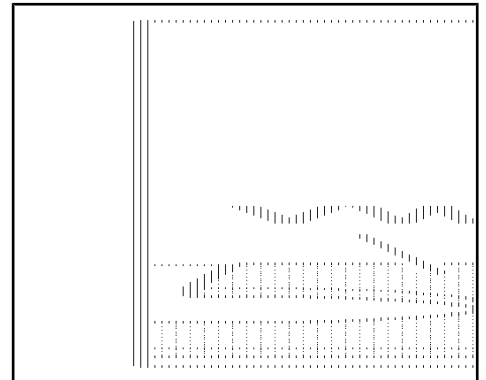
Removing the 3rd Gear Wheel

- Remove the circlip first.



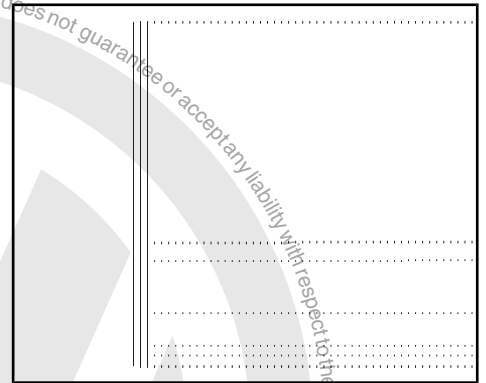
Installing 3rd Gear Wheel

Installation position: collar faces 4th gear

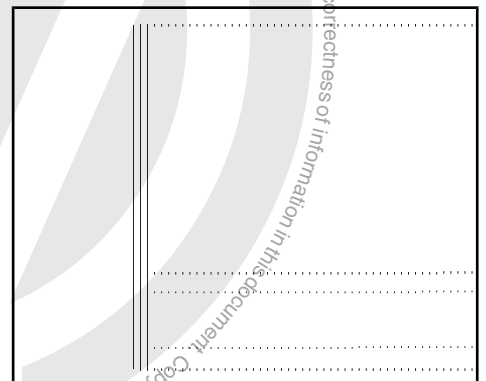


Removing 4th Gear Wheel

Installation position: Collar faces 3rd gear

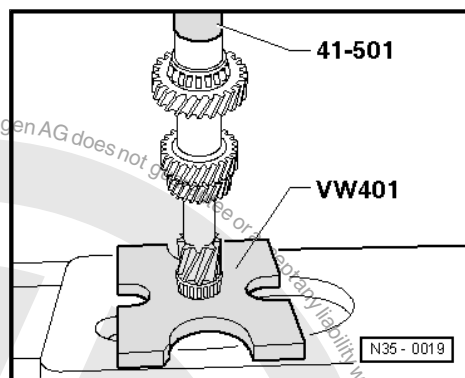


Installing the Bearing Inner Race/Taper Roller Bearing

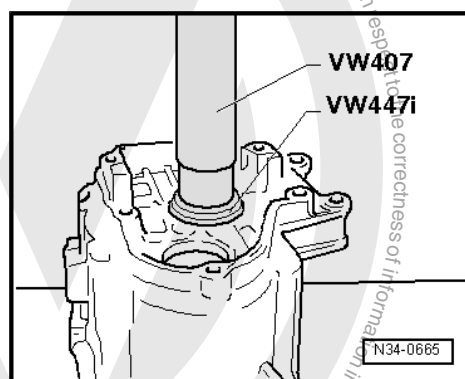




Pressing on Sleeve for 5th Gear Needle Bearing

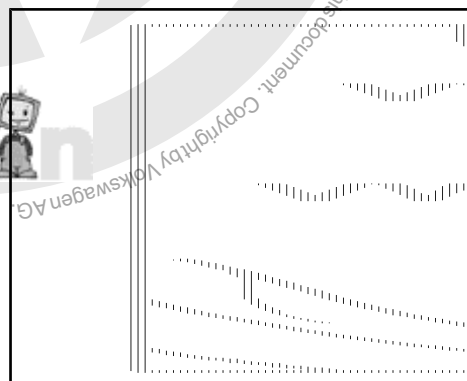


Removing the Outer Race/Tapered Roller Bearing



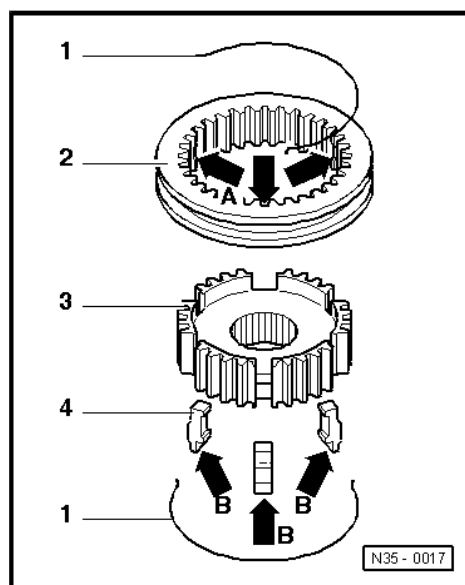
Installing the Outer Race/Tapered Roller Bearing

- Install with shim after adjusting input shaft.



5th Gear Synchronizing

- 1 - Springs for Locking Pieces
- 2 - Locking Collar with 3 Notches -arrow A- for Locking Pieces -4-
- 3 - Synchronizer Hub
- 4 - Locking pieces - installed position: the extension -arrow B- faces toward the pointed teeth of the locking collar -item 2-





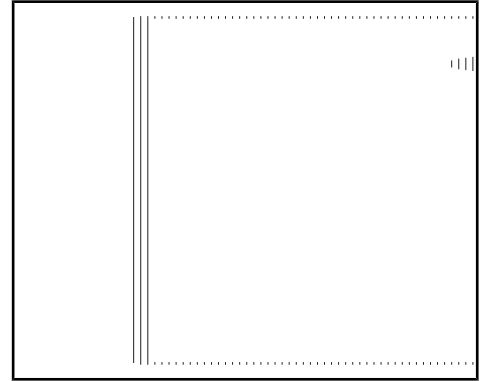
5th Gear Locking Collar/Synchronizer Hub Assembly

- Slide the locking collar over the synchronizer hub.

The pointed teeth -A- and the shoulder -B- on the synchronizer hub face in the same direction. Recesses for locking pieces in locking collar and synchronizer hub must line up. Refer to

⇒ Fig. "5th Gear Synchronizing", page 246 .

- Insert locking pieces (installed position. Refer to ⇒ Fig. "5th Gear Synchronizing", page 246).
- Install the springs offset by 120° under the tabs -C-. The angled end of the spring must be positioned in front of the locking pieces -arrows-.



Note

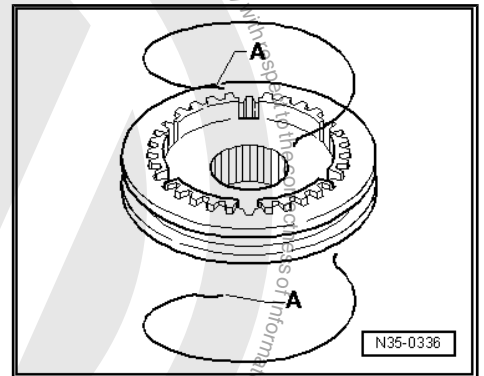
Note the location of the springs when using locking pieces with hollow interiors. Refer to

⇒ Fig. "Installation of Offset Springs -A-", page 247 .

Installation of Offset Springs -A-

These springs are installed on both sides.

- Springs are only installed in conjunction with hollow locking pieces.
- Insert locking pieces (installed position. Refer to ⇒ Fig. "5th Gear Synchronizing", page 246).

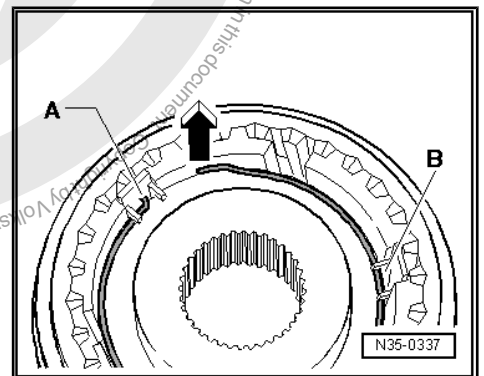


Spring Installed Position:

- Install the spring offset by 120°.
- Angled end -A- of spring must engage into the hollow locking piece.

It must be located below the tab -B- of the locking pieces.

The offset end always faces away from the synchronizer hub direction of -arrow-.



1.2 Input Shaft, Adjusting

⇒ "1.2.1 Determining the Shim", page 249

⇒ "1.2.2 Checking Measurement", page 250

(Choosing the adjusting shim for the input shaft)

Special tools and workshop equipment required

- ◆ Dial Gauge Holder - VW387-
- ◆ Measuring Set - Magnetic Plate - 50mm - VW385/17-
- ◆ Press Piece - Multiple Use - VW510-
- ◆ Press Piece - Multiple Use - VW447I-



- ◆ Press Piece - Rod - VW407-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Dial Gauge

A new input shaft adjustment is required when the following components have been replaced:

- ◆ Transmission Housing
- ◆ Clutch Housing
- ◆ Input Shaft
- ◆ 4th Gear Wheel

or the

- ◆ Tapered roller bearing

Adjustment overview. Refer to
⇒ ["2 Adjustment Overview", page 284](#) .

Requirement:

- Remove any sealant remaining on the sealing surfaces on the clutch and transmission housing.
- Press the taper roller bearing outer race into the clutch housing all the way.

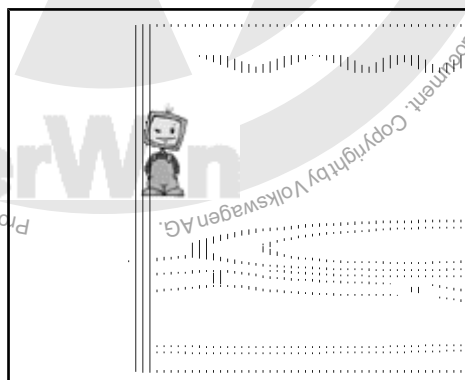
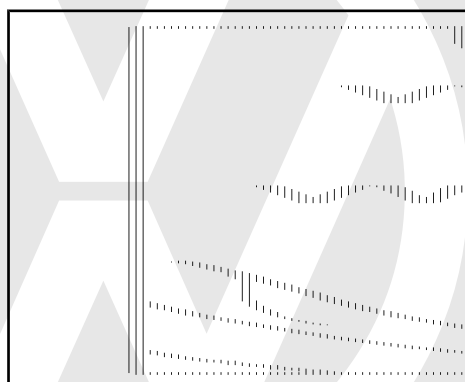
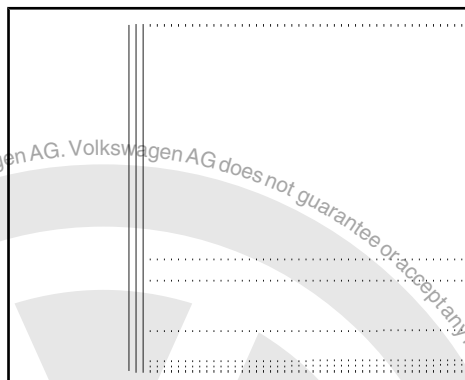
- Install the outer race/tapered roller bearing all the way into the transmission housing without the adjusting shim.
- Install the input shaft into the clutch housing and mount the transmission housing. Tighten the bolts to 25 Nm with a 90° additional turn.

- Install the measuring device and the dial gauge in the clutch housing.
- Rotate the input shaft before measuring so the tapered roller bearing settles. Set the dial gauge with 1 mm pretension to "0".



Note

Repeat this process each time a measurement is taken otherwise the dial gauge will not go back to its start setting.



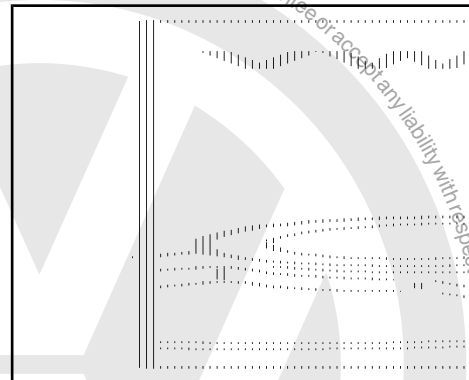


- Press the input shaft toward the dial gauge direction of -arrow-.
- Read and make note of the play on the dial gauge (example: 1.21 mm).



Note

The dial gauge does not return to its starting position.



1.2.1 Determining the Shim

Example:

Bearing clearance measured value	Adjustment shim thickness according to the table
1.21 mm	1.175 mm

Shim Table

Bearing play	Shim
Measured value (mm)	Thickness (mm)
0.671 to 0.699	0.650
0.700 to 0.724	0.675
0.725 to 0.749	0.700
0.750 to 0.774	0.725
0.775 to 0.799	0.750
0.800 to 0.824	0.775
0.825 to 0.849	0.800
0.850 to 0.874	0.825
0.875 to 0.899	0.850
0.900 to 0.924	0.875
0.925 to 0.949	0.900
0.950 to 0.974	0.925
0.975 to 0.999	0.950
1.000 to 1.024	0.975
1.025 to 1.049	1.000
1.050 to 1.074	1.025
1.075 to 1.099	1.050
1.100 to 1.124	1.075
1.125 to 1.149	1.100
1.150 to 1.174	1.125
1.175 to 1.199	1.150
1.200 to 1.224	1.175
1.225 to 1.249	1.200
1.250 to 1.274	1.225
1.275 to 1.299	1.250
1.300 to 1.324	1.275
1.325 to 1.349	1.300
1.350 to 1.374	1.325
1.375 to 1.399	1.350
1.400 to 1.424	1.375
1.425 to 1.449	1.400
1.450 to 1.474	1.425
1.475 to 1.499	1.450
1.500 to 1.524	1.475
1.525 to 1.549	1.500
1.550 to 1.574	1.525



Bearing play	Shim
Measured value (mm)	Thickness (mm)
1.575 to 1.599	1.550
1.600 to 1.624	1.575
1.625 to 1.649	1.600
1.650 to 1.674	1.625
1.675 to 1.699	1.650
1.700 to 1.724	1.675



Note

Allocate the shims. Refer to the Parts Catalog.

- Remove the driveshaft and pry out the outer race/tapered roller bearing using the Press Piece - VW447 i- from the transmission housing.

- Install the shim with the correct thickness, thickest shim first.

If the measured shim thickness is larger than those listed in the table, then install two shims that add up to the necessary thickness.

- Press the outer race/tapered roller bearing and the selected shim (1.175 mm in the example) into the transmission housing using the Press Piece - Multiple Use - VW510- .
- Assemble the transmission housing and tighten the hex bolts to 25 Nm plus an additional 90°.

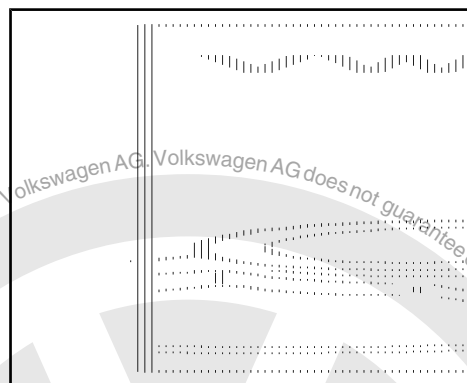
1.2.2 Checking Measurement

- Install the measuring device and the dial gauge.
- Turn the input shaft so that the tapered roller bearings settle.
- Press the input shaft in direction of -arrow-.
- Bearing play should be between 0.01 and 0.09.



Note

The adjustment is OK if it is not possible to measure the bearing play and yet the input shaft still have a noticeable play and it easy to turn.



1.3 Input Shaft Seal, Replacing

Special tools and workshop equipment required

- ♦ Bearing/Bushing Installer - Multiple Use - VW295-
- ♦ Bearing/Bushing Installer - Multiple Use - VW295A-
- ♦ Press Piece - Multiple Use - VW454-
- ♦ Press Piece - Front Control Arm - 2040-
- Transmission is removed.
- Remove the clutch release lever with the release bearing and guide sleeve. Refer to
⇒ ["2 Clutch Release Mechanism, Servicing", page 45](#) .





- Drive seal out of guide sleeve.



Note

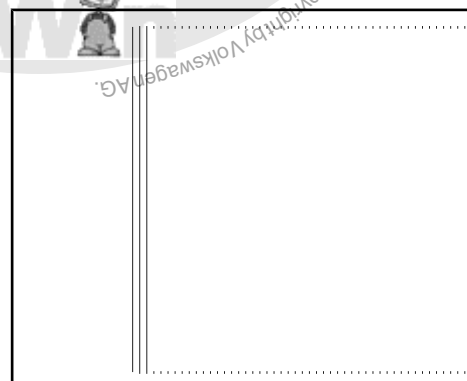
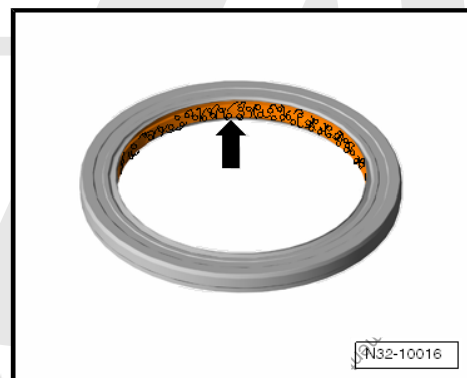
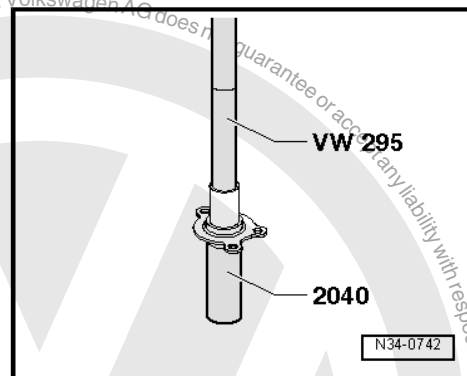
Be careful not to damage the contact surface for the seal on the input shaft.

- Fill the space between the sealing and dust lip -arrow- halfway with Sealing Grease - G 052 128 A1- .
- Coat the outer circumference of the seal lightly with transmission fluid.

- Install the seal all the way into the guide sleeve.
- Install the clutch release lever with the release bearing and guide sleeve. Refer to
⇒ [“2 Clutch Release Mechanism, Servicing”, page 45](#) .

Tightening Specifications

- ◆ Guide sleeve to the clutch housing. Refer to
⇒ [“2 Clutch Release Mechanism, Servicing”, page 45](#) .





2 Output Shaft

⇒ [“2.1 Output Shaft, Disassembling and Assembling”, page 252](#)

⇒ [“2.2 Output Shaft, Adjusting”, page 263](#)

2.1 Output Shaft, Disassembling and Assembling

- ◆ Press Piece - Rod - VW407-
- ◆ Press Piece - Rod - VW408A-
- ◆ Press Piece - Rod - VW409-
- ◆ Press Piece - Rod - VW412-
- ◆ Press Piece - Multiple Use - VW512-
- ◆ Puller - Taper Roller Bearing - VAG1582-
- ◆ Puller - Taper Roller Bearing - Adapter 4 - VAG1582/4-
- ◆ Puller - Taper Roller Bearing - Adapter 5 - VAG1582/5-
- ◆ Press Plate - VW402-
- ◆ Bearing Installer - Multiple Use - 32-111-
- ◆ Support Channels - VW457-
- ◆ Press Piece - Multiple Use - VW519-
- ◆ Press Piece - Multiple Use - VW429-
- ◆ Press Piece - 60mm - VW415A-
- ◆ Press Piece - Multiple Use - VW447H-
- ◆ Press Piece - Multiple Use - VW454-
- ◆ Press Piece - Multiple Use - VW455-
- ◆ Press Tube - 41-501-
- ◆ Puller - Kukko Internal - 36-46mm - Kukko 21/6-
- ◆ Puller - Kukko Quick Action Separating Tool - 22-115mm - Kukko 17/2-
- ◆ Puller - Kukko Counterstay - Kukko 22/2-
- ◆ Inductive Heater - VAS6414-



Note

- ◆ *Disassemble the output shaft as follows: place the separating device under the 2nd gear wheel -item 21- ⇒ [Item 21 \(page 255\)](#) and remove it as described. Refer to ⇒ [Fig. “3rd/4th Gear Synchronizer Hub/Locking Collar, 2nd, 3rd and 4th Gear Wheel with Output Shaft Needle Bearing Sleeve, Removing”](#), [page 257](#) . Remove the locking ring -item 17- ⇒ [Item 17 \(page 254\)](#) . Remove the locking collar and the 1st/2nd gear synchronizer hub as described in ⇒ [Fig. “Removing the Locking Collar with the Synchronizer Hub And Bearing Mount”](#), [page 257](#) .*
- ◆ *Consult the Parts Catalog and the Technical data when installing new gear wheels or a new output shaft. Refer to ⇒ [“2.3 Codes, Transmission Allocation and Capacities”, page 3](#) .*
- ◆ *Replace both tapered roller bearings together.*
- ◆ *Wearing safety gloves, warm the bearing inner races, the gear wheels and the synchronizer hubs to approximately 100 °C (212°F) using an Inductive Heater - VAS6414- before installing them.*



1 - Nut

- ☐ 25 Nm and 90° additional turn
- ☐ Always replace.
- ☐ 4 nuts for the bearing mount

2 - Clutch Housing

3 - Shim

- ☐ For the output shaft
- ☐ Adjustment overview. Refer to
⇒ ["2 Adjustment Overview", page 284](#).

4 - Small Outer Race/Tapered Roller Bearing

- ☐ Removing. Refer to
⇒ [Fig. "Remove the Small Outer Race/Tapered Roller Bearing", page 256](#).
- ☐ Installing. Refer to
⇒ [Fig. "Outer Race/Small Tapered Roller Bearing, Installing", page 256](#)

5 - Bearing Inner Race/Small Tapered Roller Bearing

- ☐ Removing. Refer to
⇒ [Fig. "Bearing Inner Race/Small Tapered Roller Bearing", page 257](#)
- ☐ Installing. Refer to
⇒ [Fig. "Bearing Inner Race/Small Tapered Roller Bearing, Installing", page 257](#)

6 - Output Shaft

- ☐ Adjusting. Refer to ⇒ ["2.2 Output Shaft, Adjusting", page 263](#).

7 - Bearing Inner Race/Large Tapered Roller Bearing

- ☐ Removing. Refer to
⇒ [Fig. "Removing the Bearing Inner Race/Large Tapered Roller Bearing", page 258](#)
- ☐ Installing. Refer to
⇒ [Fig. "Installing the Bearing Inner Race/Large Tapered Roller Bearing", page 258](#)

8 - Seal

- ☐ Always replace.
- ☐ Place the four seals on the bearing mount bolts.

9 - Bearing Mount

- ☐ With the large outer race/tapered roller bearing and bolts
- ☐ Replace the outer race only together with the large tapered roller bearing and bearing mount

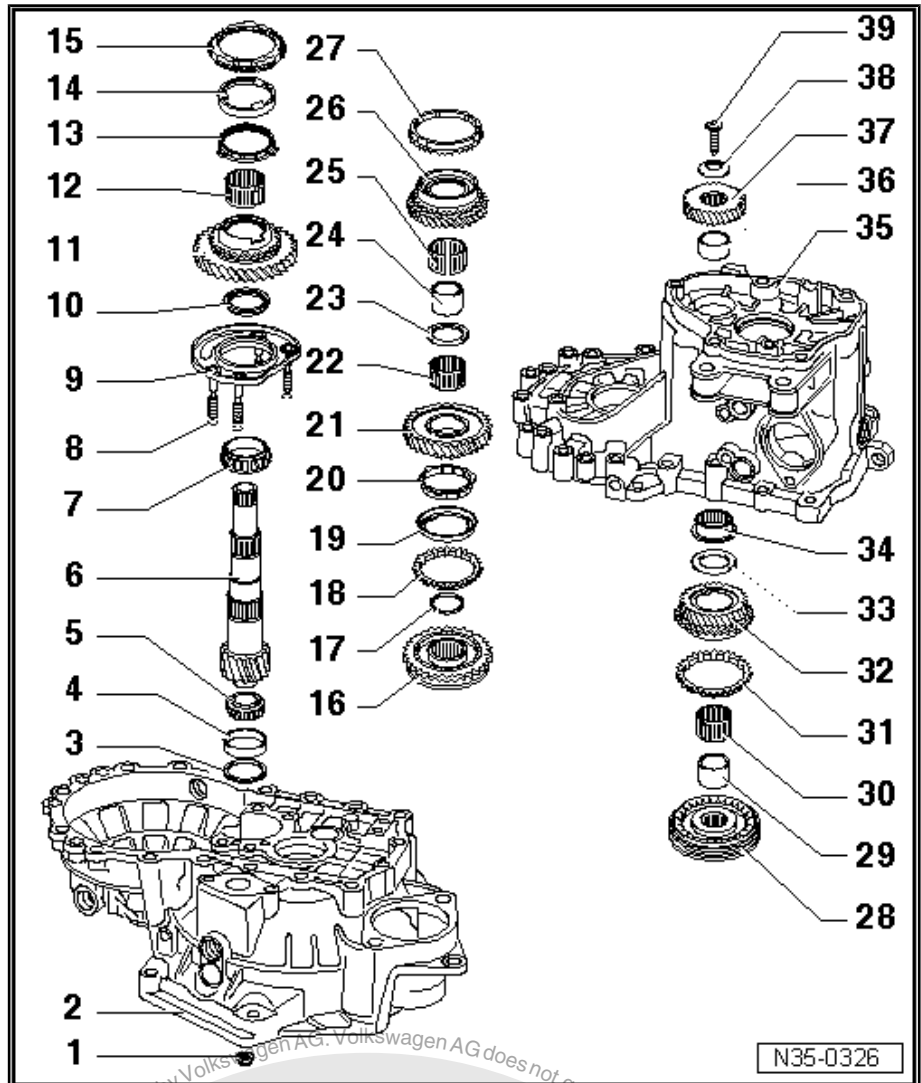
10 - Thrust Washer

- ☐ The collar on the thrust washer faces the tapered roller bearing

11 - 1st Gear Wheel

12 - Needle Bearing

- ☐ For 1st gear





13 - Synchronizer Ring

- ☐ (Inner race for 1st gear)
- ☐ Installation position. Refer to
⇒ [Fig. "Installed Position of the Inner Race, the Outer Race and the 1st Gear Synchronizer Ring"](#) , page 258 .
- ☐ Checking for wear. Refer to
⇒ [Fig. "Checking Inner Race for 1st Gear and 2nd Gear for Wear"](#) , page 258
- ☐ Check for scoring

14 - 1st Gear Outer Race

- ☐ Installation position. Refer to
⇒ [Fig. "Installed Position of the Inner Race, the Outer Race and the 1st Gear Synchronizer Ring"](#) , page 258 .
- ☐ Checking for wear. Refer to
⇒ [Fig. "Checking 1st Gear and 2nd Gear Synchronizing Ring for Wear"](#) , page 259
- ☐ Replace if there are grooves or scoring

15 - 1st Gear Synchronizer Ring

- ☐ Installation position. Refer to
⇒ [Fig. "Installed Position of the Inner Race, the Outer Race and the 1st Gear Synchronizer Ring"](#) , page 258 .
- ☐ Checking for wear. Refer to
⇒ [Fig. "Checking 1st Gear and 2nd Gear Synchronizing Ring for Wear"](#) , page 259

16 - Locking Collar with Synchronizer Hub for 1st and 2nd Gears

- ☐ After removing the locking ring -item 17- ⇒ [Item 17 \(page 254\)](#) , remove with the bearing mount. Refer to
⇒ [Fig. "Removing the Locking Collar with the Synchronizer Hub And Bearing Mount"](#) , page 257
- ☐ Disassembling. Refer to
⇒ [Fig. "Disassembling and Assembling Locking Collar and Synchronizer Hub for 1st and 2nd Gears"](#) , page 259 .
- ☐ Assembling operating sleeve/synchronizer hub. Refer to
⇒ [Fig. "Disassembling and Assembling Locking Collar and Synchronizer Hub for 1st and 2nd Gears"](#) , page 259 ,
⇒ [Fig. "Assembly: Locking Collar/Synchronizer Hub for 1st and 2nd Gears Together with Locking Pieces that are Hollow on the Inside"](#) , page 259 and
⇒ [Fig. "Assembly: Locking Collar/Synchronizer Hub for 1st and 2nd Gears Together with Locking Pieces that are not Hollow"](#) , page 260
- ☐ Installation position. Refer to
⇒ [Fig. "Installed Position: Locking Collar/Synchronizer Hub for 1st and 2nd Gears"](#) , page 260 .
- ☐ Installing. Refer to
⇒ [Fig. "Installing the Locking Collar/Synchronizer Hub for 1st and 2nd Gears."](#) , page 260

17 - Circlip

18 - 2nd Gear Synchronizer Ring

- ☐ Checking for wear. Refer to
⇒ [Fig. "Checking 1st Gear and 2nd Gear Synchronizing Ring for Wear"](#) , page 259
- ☐ Insert it so that the holes engage into engagement pieces of locking collar -item 16-
⇒ [Item 16 \(page 254\)](#) .

19 - 2nd Gear Outer Race

- ☐ Insert into synchronizer ring -item 18- ⇒ [Item 18 \(page 254\)](#) .
- ☐ Installation position. Refer to ⇒ [Fig. "Installed Position of 2nd Gear Outer Race"](#) , page 260 .
- ☐ Replace if there are grooves or scoring

20 - Synchronizer ring

- ☐ (Inner race for 2nd gear)
- ☐ Checking for wear. Refer to
⇒ [Fig. "Checking 1st Gear and 2nd Gear Synchronizing Ring for Wear"](#) , page 259
- ☐ Check for scoring
- ☐ Installation position. Refer to
⇒ [Fig. "Installed Position: Synchronizer Ring -A- \(2nd Gear Inner Race\)"](#) , page 261 .



21 - 2nd gear wheel

- ☐ Installation position. Refer to ➔ [Fig. "“Installed position: 2nd gear wheel”", page 261](#) .

22 - Needle Bearing

- ☐ For 2nd gear

23 - Thrust Washer

24 - 3rd Gear Needle Bearing Sleeve

- ☐ Removing with the 2nd gear wheel. Refer to
➔ [Fig. "“3rd/4th Gear Synchronizer Hub/Locking Collar, 2nd, 3rd and 4th Gear Wheel with Output Shaft Needle Bearing Sleeve, Removing”", page 257](#)
- ☐ Installing. Refer to ➔ [Fig. "“Installing the Sleeve for the 3rd Gear Needle Bearing”", page 261](#)

25 - Needle Bearing

- ☐ For 3rd gear

26 - 3rd Gear Wheel

27 - 3rd Gear Synchronizer Ring

- ☐ Checking for wear ➔ [Fig. "“Checking 3rd/4th Gear Synchronizing Ring for Wear”", page 261](#)

28 - Locking Collar with Synchronizer Hub for 3rd and 4th Gears

- ☐ Remove with 2nd gear wheel -item 21- ➔ [Item 21 \(page 255\)](#) and 3rd gear -item 26- ➔ [Item 26 \(page 255\)](#)
➔ [Fig. "“3rd/4th Gear Synchronizer Hub/Locking Collar, 2nd, 3rd and 4th Gear Wheel with Output Shaft Needle Bearing Sleeve, Removing”", page 257](#)
- ☐ Disassembling. Refer to
➔ [Fig. "“Disassembling and Assembling Locking Collar and Synchronizer Hub for 3rd/4th Gears”", page 262](#) .
- ☐ Assembling operating sleeve/synchronizer hub. Refer to
➔ [Fig. "“Disassembling and Assembling Locking Collar and Synchronizer Hub for 3rd/4th Gears”", page 262](#) ,
➔ [Fig. "“Assembly: locking collar/synchronizer hub for 3rd and 4th gears together with locking pieces that are hollow on the inside”", page 262](#) and
➔ [Fig. "“Assembly: Locking Collar/Synchronizer Hub for 3rd and 4th Gears Together with Locking Pieces that are not Hollow”", page 262](#)
- ☐ Installed position: locking collar/synchronizer hub. Refer to
➔ [Fig. "“Installed Position: Locking Collar/Synchronizer Hub for 3rd and 4th Gears”", page 263](#)
- ☐ Installing. Refer to
➔ [Fig. "“Installing the Synchronizer Hub with Locking Collar for 3rd and 4th Gears”", page 263](#)

29 - Sleeve

- ☐ For the 4th gear needle bearing
- ☐ Removing with the locking collar and the 3rd/4th gear synchronizer hub -item 28- ➔ [Item 28 \(page 255\)](#) . Refer to
➔ [Fig. "“3rd/4th Gear Synchronizer Hub/Locking Collar, 2nd, 3rd and 4th Gear Wheel with Output Shaft Needle Bearing Sleeve, Removing”", page 257](#)
- ☐ Installing. Refer to ➔ [Fig. "“Installing the Sleeve for the 4th Gear Needle Bearing”", page 263](#)

30 - Needle Bearing

- ☐ For 4th gear

31 - 4th Gear Synchronizer Ring

- ☐ Checking for wear. Refer to ➔ [Fig. "“Checking 3rd/4th Gear Synchronizing Ring for Wear”", page 261](#)

32 - 4th Gear Wheel

33 - Thrust Washer

34 - Needle Bearing

- ☐ For the output shaft
- ☐ Removing and Installing. Refer to -item 2- ➔ [Item 2 \(page 203\)](#) .



35 - Transmission Housing

36 - Sleeve

- ☐ For the needle bearing/output shaft
- ☐ Removing. Refer to
⇒ [Fig. "3rd/4th Gear Synchronizer Hub/Locking Collar, 2nd, 3rd and 4th Gear Wheel with Output Shaft Needle Bearing Sleeve, Removing"](#) , page 257
- ☐ Installing. Refer to ⇒ [Fig. "Installing the Sleeve for the Needle Bearing/Output Shaft"](#) , page 263

37 - 5th Gear Wheel

- ☐ Remove individually. Refer to
⇒ ["7.6 Assembly Sequence, Transmission Housing Cover and 5th Gear, Removing and Installing"](#) , page 185
- ☐ Remove with the transmission housing. Refer to
⇒ ["7.7 Transmission, Assembly Sequence, Disassembling and Assembling"](#) , page 189

38 - Plate Spring

- ☐ Installation position. Refer to
⇒ [Fig. "Installed Position of Plate Springs for 5th Gear Synchronizer Hub and Gear Securing Bolts"](#) , page 200 .

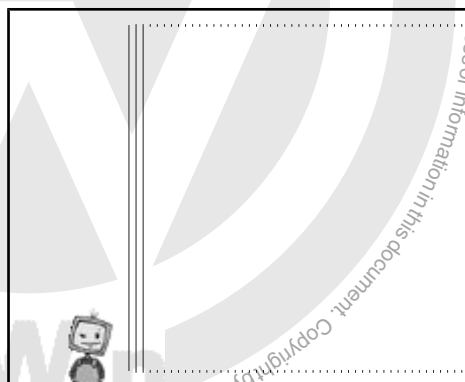
39 - Screw -item 4- ⇒ [Item 4 \(page 181\)](#)

- ☐ Always replace.
- ☐ Removing and Installing. Refer to
⇒ ["7.7 Transmission, Assembly Sequence, Disassembling and Assembling"](#) , page 189 .

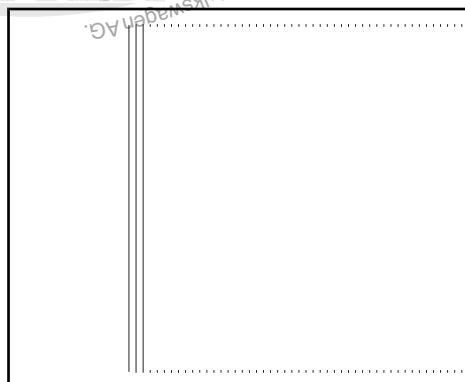
Remove the Small Outer Race/Tapered Roller Bearing

A - Internal Puller - 37-46mm for example Puller - Kukko Internal
- 36-46mm - Kukko 21/6-

B - Counter Support , for example, Puller - Kukko Counterstay -
Kukko 22/2-



Outer Race/Small Tapered Roller Bearing, Installing

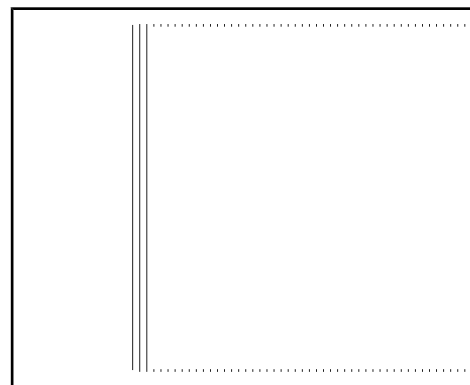




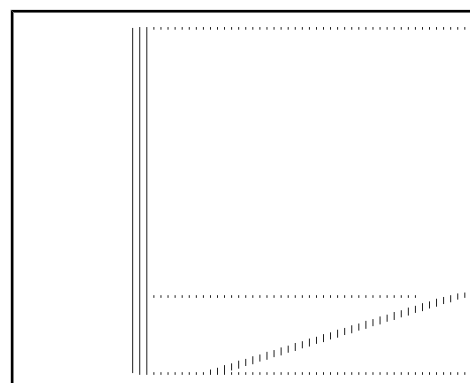
Bearing Inner Race/Small Taper Roller Bearing

A - Protective jaws/vise

- Mount the grip and apply tension behind rolling the bearing. Then rotate the bearing and apply tension to the grip.



Bearing Inner Race/Small Tapered Roller Bearing, Installing



3rd/4th Gear Synchronizer Hub/Locking Collar, 2nd, 3rd and 4th Gear Wheel with Output Shaft Needle Bearing Sleeve, Removing

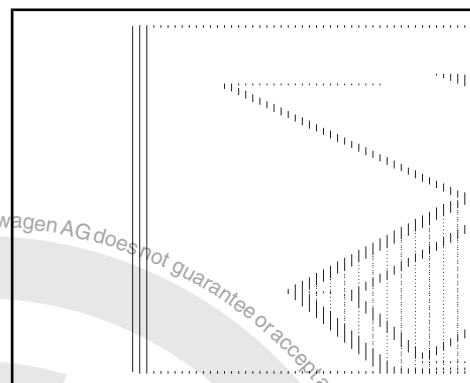
A - 22 to 115 mm Separating Tool , for example Puller - Kukko
Quick Action Separating Tool - 22-115mm -Kukko 17/2-

B - M10 x 20, 17 mm hex bolt



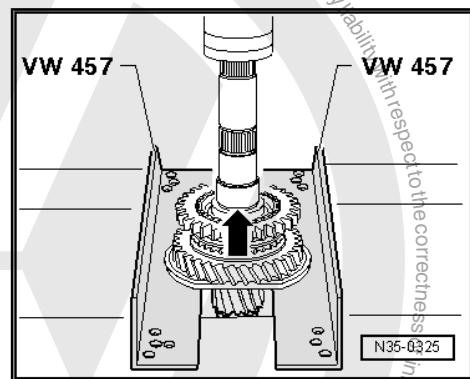
Note

Support the separating tool so that the 1st/2nd gear locking collar does not come off as well.



Removing the Locking Collar with the Synchronizer Hub And Bearing Mount

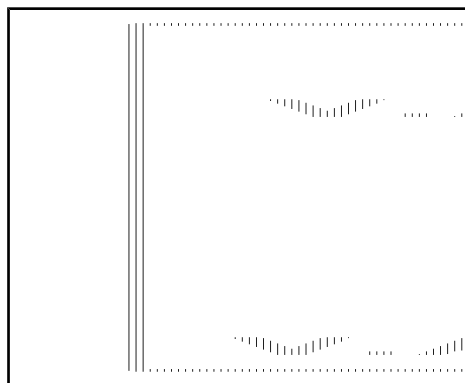
- Remove the locking ring -arrow- beforehand.





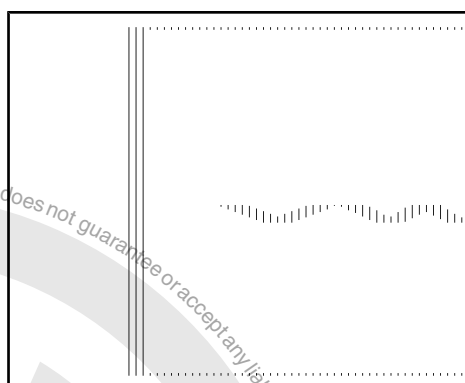
Removing the Bearing Inner Race/Large Tapered Roller Bearing

- A- vice protectors
- Before installing puller, insert a M10 x 20 bolt into the hole in the output shaft.



Installing the Bearing Inner Race/Large Tapered Roller Bearing

- A- thrust washer
- Install the thrust washer before installing the bearing inner race. The shoulder faces the inner race.



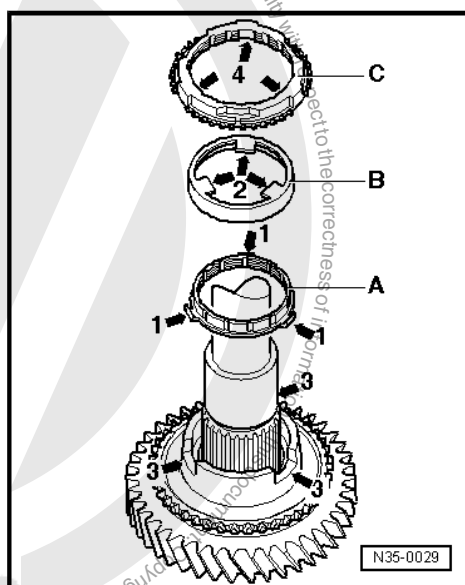
Installed Position of the Inner Race, the Outer Race and the 1st Gear Synchronizer Ring

- Place inner race -A- on drive gear for 1st gear.
The angled tabs -arrows 1- face the outer race -B-.
- Install the outer race -B-.
- The tabs -arrows 2- must lock into the retainers -arrows 3- in the gear wheel.
- Install the synchronizer ring -C-.
- The retainers -arrows 4- lock in the tabs -arrows 1- on the inner race -A-.



Note

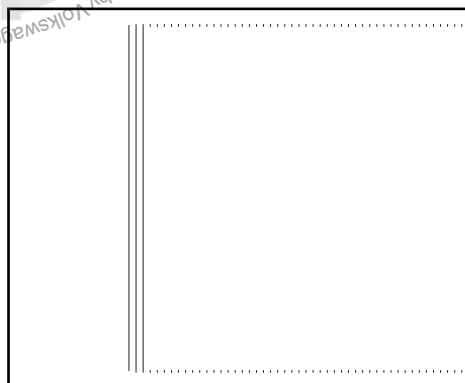
If the parts are not to be replaced, make sure they are reallocated to their original gear.



Checking Inner Race for 1st Gear and 2nd Gear for Wear

- Install the inner race onto taper of selector gear and then measure gap dimension -a- with a feeler gauge.

Gap dimension -a-	Installation Dimension	Wear limit
1st and 2nd gear	0.75 to 1.25 mm	0.3 mm

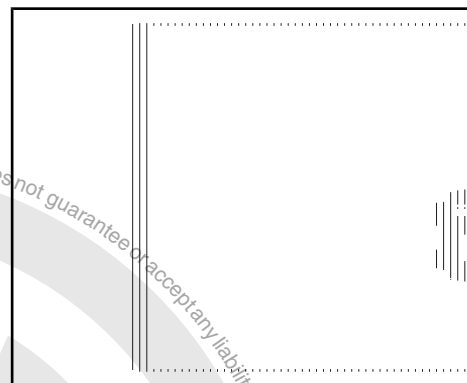




Checking 1st Gear and 2nd Gear Synchronizing Ring for Wear

- Install the synchronizer ring, outer race and inner race onto taper of selector gear and then measure the gap dimension -a- with a feeler gauge.

Gap dimension -a-	Installation Dimension	Wear limit
1st and 2nd gear	1.2 to 1.8 mm	0.5 mm



Disassembling and Assembling Locking Collar and Synchronizer Hub for 1st and 2nd Gears

1 - Spring

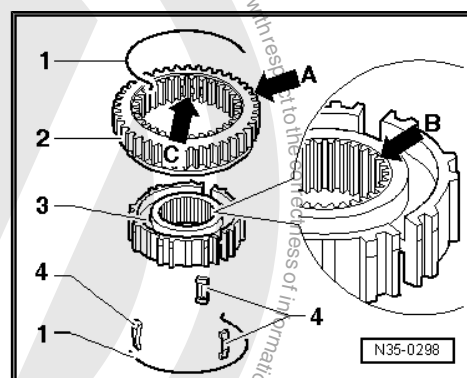
Allocate the correct springs. Refer to the Parts Catalog

Installing with the hollow locking pieces. Refer to

⇒ Fig. [“Assembly: Locking Collar/Synchronizer Hub for 1st and 2nd Gears Together with Locking Pieces that are Hollow on the Inside”](#), page 259

Installing with the locking pieces that are not hollow. Refer to

⇒ Fig. [“Assembly: Locking Collar/Synchronizer Hub for 1st and 2nd Gears Together with Locking Pieces that are not Hollow”](#), page 260 .



2 - Locking collar

3 - Synchronizer Hub

4 - Locking piece

Allocate the locking pieces. Refer to the Parts Catalog.

The collar has the same width on both side of the synchronizer hub.

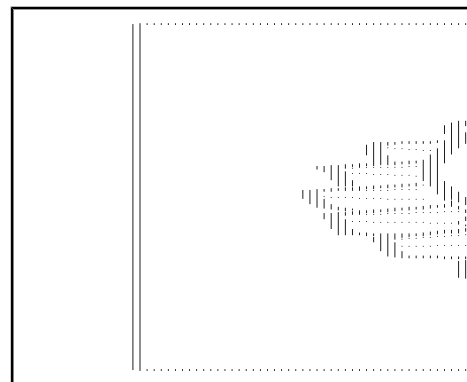
The shoulder has a chamfer on one side -arrow B-

The bevel on the synchronizer hub collar and the splines on the outside of the locking collar -arrow A- face in the same direction after being assembled.

The notches on the synchronizer hub and locking collar for the locking pieces -arrow C- must line up.

Assembly: Locking Collar/Synchronizer Hub for 1st and 2nd Gears Together with Locking Pieces that are Hollow on the Inside

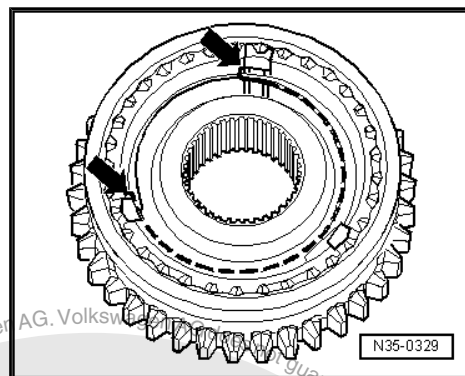
- The locking collar is pushed over the synchronizer hub.
- Install the locking pieces and springs offset by 120°. The angled end of the spring must engage into the hollow locking piece.





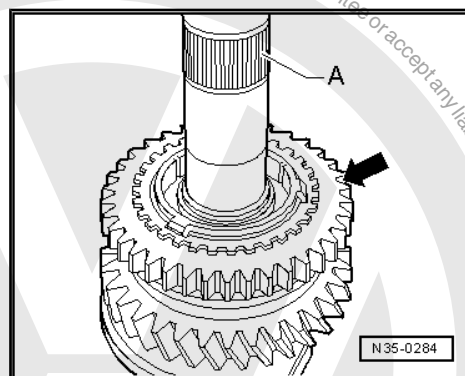
Assembly: Locking Collar/Synchronizer Hub for 1st and 2nd Gears Together with Locking Pieces that are not Hollow

- The locking collar is pushed over the synchronizer hub.
- Install the locking pieces and springs offset by 120°. The angled end of the spring must be positioned in front of the locking pieces -arrows-.



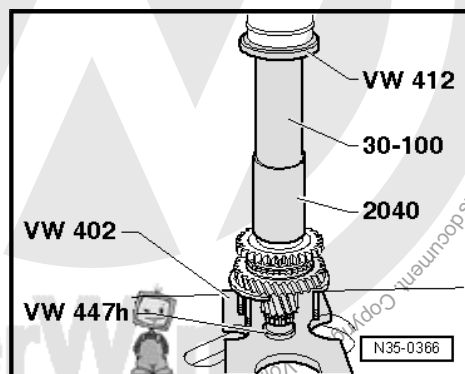
Installed Position: Locking Collar/Synchronizer Hub for 1st and 2nd Gears

The teeth on the locking collar -arrow- point toward the splines for the 3rd/4th gear synchronizer hub -A-.



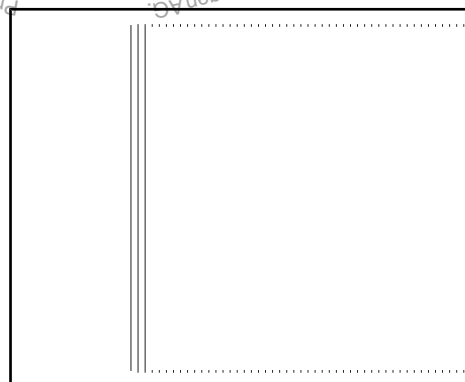
Installing the Locking Collar/Synchronizer Hub for 1st and 2nd Gears.

Turn the synchronizer ring so that the grooves line up with the locking pieces.



Installed Position of 2nd Gear Outer Race

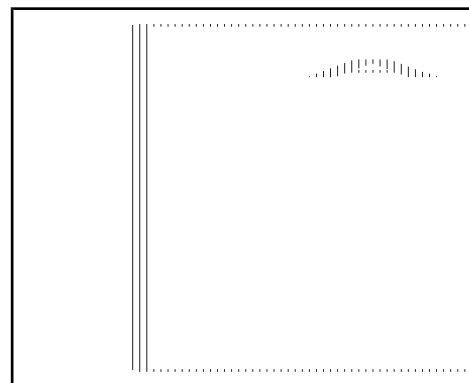
The tabs -arrows- face 1st gear -A-.





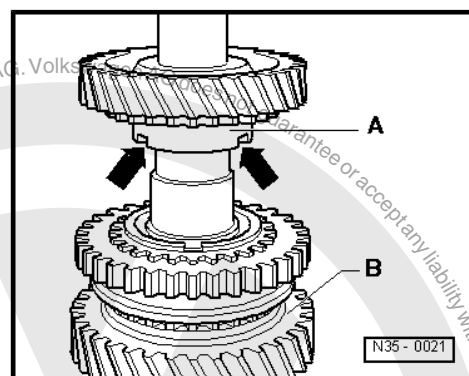
Installed Position: Synchronizer Ring -A- (2nd Gear Inner Race)

The tabs -arrow 1- engage into the holes -arrow 2- inside the synchronizer ring -B-.

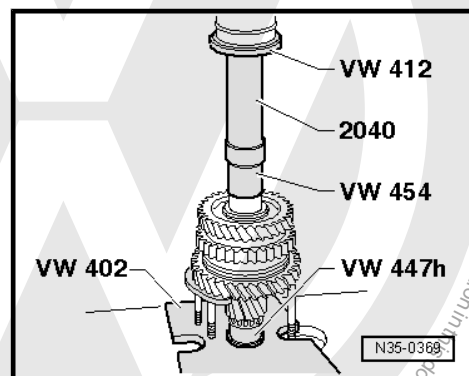


Installed position: 2nd gear wheel

The higher collar -A- faces toward 1st gear -B-. The notches in the collar -arrow- lock into the tabs on the outer race. Refer to ⇒ Fig. "Installed Position of 2nd Gear Outer Race", page 260.



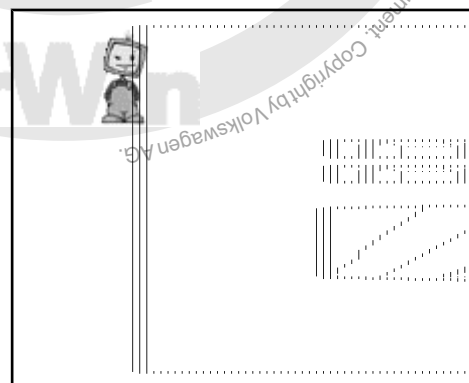
Installing the Sleeve for the 3rd Gear Needle Bearing



Checking 3rd/4th Gear Synchronizing Ring for Wear

- Press synchronizer ring onto taper of the gear wheel and measure gap dimension -a- using a feeler gauge.

Gap dimension -a-	Installation Dimen- sion	Wear limit
3rd and 4th gear	1.0 to 1.7 mm	0.5 mm





Disassembling and Assembling Locking Collar and Synchronizer Hub for 3rd/4th Gears

1 - Spring

Allocate the correct springs. Refer to the Parts Catalog

Installing with the hollow locking pieces. Refer to

⇒ Fig. [““Assembly: locking collar/synchronizer hub for 3rd and 4th gears together with locking pieces that are hollow on the inside””](#), page 262 .

Installing with the locking pieces that are not hollow. Refer to

⇒ Fig. [““Assembly: Locking Collar/Synchronizer Hub for 3rd and 4th Gears Together with Locking Pieces that are not Hollow””](#), page 262 .

2 - Locking piece

Allocate the locking pieces. Refer to the Parts Catalog.

3 - Locking collar

4 - Synchronizer Hub

- Slide the locking collar over the synchronizer hub.

The notches for the locking pieces on the synchronizer hub and locking collar must line up with each other.

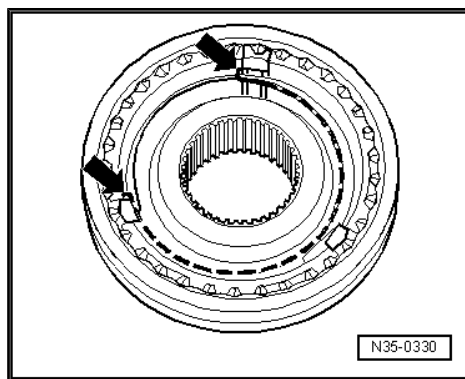
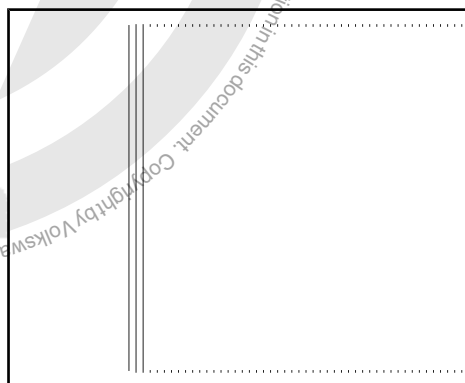
Assembly: locking collar/synchronizer hub for 3rd and 4th gears together with locking pieces that are hollow on the inside

The locking collar is pushed over the synchronizer hub.

- Install the locking pieces and springs offset by 120°. The angled end of the spring must engage into the hollow locking piece.

Assembly: Locking Collar/Synchronizer Hub for 3rd and 4th Gears Together with Locking Pieces that are not Hollow

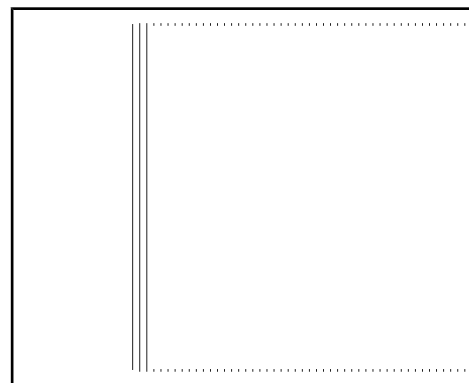
- The locking collar is pushed over the synchronizer hub.
- Install the locking pieces and springs offset by 120°. The angled end of the spring must be positioned in front of the locking pieces -arrows-.



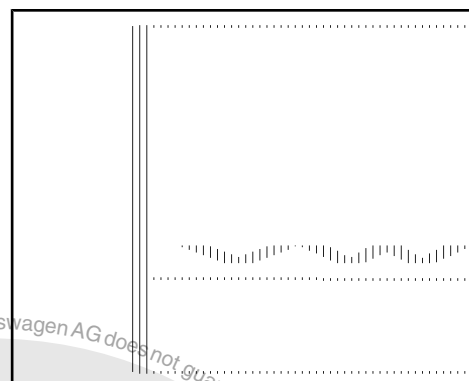


Installed Position: Locking Collar/Synchronizer Hub for 3rd and 4th Gears

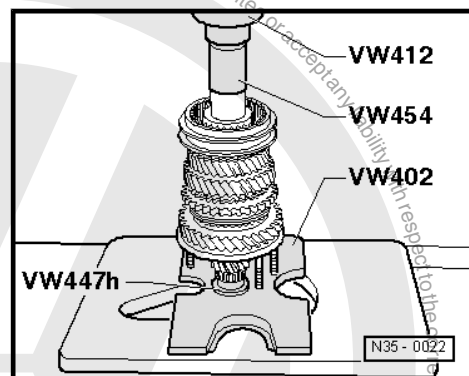
The bevel -arrow- faces the 4th gear.



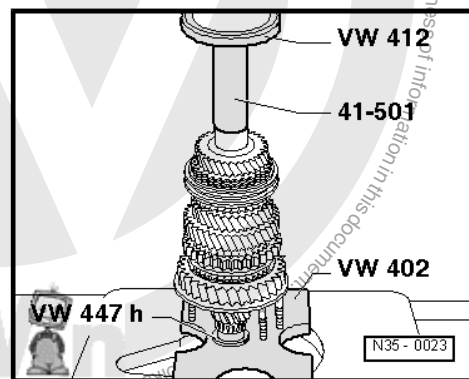
Installing the Synchronizer Hub with Locking Collar for 3rd and 4th Gears



Installing the Sleeve for the 4th Gear Needle Bearing



Installing the Sleeve for the Needle Bearing/Output Shaft



2.2 Output Shaft, Adjusting

⇒ **"2.2.1 Determining the Shim", page 265**

(Selecting the correct adjusting shim for the output shaft)

Special tools and workshop equipment required

- ◆ Dial Gauge Holder - VW387-
- ◆ Measuring Set - Magnetic Plate - 50mm - VW385/17-



- ◆ Press Piece - Multiple Use - VW512-
- ◆ Door Alignment Device - Replacement Stud - 3114/2-
- ◆ Press Piece - Rod - VW407-
- ◆ Torque Wrench 5-50Nm - VAG1331-
- ◆ Dial Gauge
- ◆ Puller - Kukko Internal - 36-46mm - 21/6-
- ◆ Puller - Kukko Counterstay - 22/2-

It is necessary to adjust the output shaft if the following components were replaced:

- ◆ Output Shaft
- ◆ Clutch Housing

or

- ◆ Tapered roller bearing

Adjustment overview. Refer to
⇒ [“2 Adjustment Overview”, page 284](#) .

Requirement:

- Remove any sealant remaining on the sealing surfaces on the clutch and transmission housing.

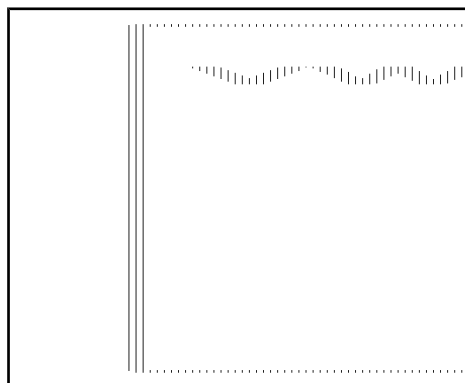
Perform the following procedure:

- Install the small tapered roller bearing outer race with a 0.65 mm thick shim into the clutch housing to the limit stop. Refer to
⇒ [Fig. ““Outer Race/Small Tapered Roller Bearing, Installing””, page 256](#) .
- Install output shaft and tighten the bearing mount nuts to 25 Nm, and then a 90° additional turn.
- Rotate the output shaft 20 to 30 times in one direction.



Note

- ◆ *It must be rotated in one direction so the tapered roller bearing rollers are seated in one direction.*
- ◆ *Therefore, it must also be rotated 20 to 30 times in one direction.*
- ◆ *Otherwise the measurements will be incorrect.*
- Install dial gauge (3 mm measuring range) and set to “0” with 1 mm pre-load.
- Move the output shaft up and down. Read the play on the dial gauge and note it (example: 0.20 mm).





2.2.1 Determining the Shim

The specified bearing preload is reached by adding a constant preload figure 0.10 to 0.15 mm to the reading obtained and the thickness of the installed shim.

Example:

Inserted shim	0.65 mm
+ measured value	0.20 mm
+ Preload (constant value)	0.15 mm
Shim thickness	1.00 mm

Example:

Bearing play = (adjustment shim 0.65 mm plus the measured value)	Adjustment shim thickness ac- cording to the table
0.850 mm	1.000 mm

- Remove the output shaft and then remove the small taper roller bearing outer race. Refer to
⇒ Fig. “Remove the Small Outer Race/Tapered Roller Bearing”, page 256

Shim Table

Bearing play = (adjustment shim 0.65 mm plus the measured value)	Adjustment shim thickness (mm)
0.650	0.750
0.660 to 0.689	0.800
0.690 to 0.739	0.850
0.740 to 0.789	0.900
0.790 to 0.839	0.950
0.840 to 0.889	1.000
0.890 to 0.939	1.050
0.940 to 0.989	1.100
0.990 to 1.039	1.150
1.040 to 1.089	1.200
1.090 to 1.139	1.250
1.140 to 1.189	1.300
1.190 to 1.239	1.350
1.240 to 1.289	1.400
1.290 to 1.339	1.450
1.340 to 1.389	1.500
1.390 to 1.429	1.550



Note

Allocate the shims. Refer to the Parts Catalog.

- Install the shim with the correct thickness, thickest shim first.
- If the previous 0.65 mm adjustment shim will be inserted again, check it for damage.

If the measured shim thickness is larger than those listed in the table, then install two shims that add up to the necessary thickness.

Tolerance variations make it possible to find the exact shim thickness required.



- Install the small tapered roller bearing outer race with the shim (1.00 mm in the example). Refer to [⇒ Fig. “Outer Race/Small Tapered Roller Bearing, Installing”, page 256](#) and then install the output shaft. Tighten the bearing mount nuts in the clutch housing to 25 Nm and then turn 90° further.





3 Reverse Shaft

⇒ **"3.1 Reverse Shaft, Disassembling and Assembling",**
page 267

3.1 Reverse Shaft, Disassembling and Assembling

Special tools and workshop equipment required

- ◆ Press Piece - Multiple Use - VW454-
- ◆ Press Piece - Multiple Use - VW447H-
- ◆ Press Piece - Rod - VW411-
- ◆ Centering/Press Pin - 12-551-
- ◆ Press Plate - VW401-
- ◆ Press Piece - Rod - VW408A-
- ◆ Puller - Kukko Internal - 14-19mm - 21/2-
- ◆ Puller - Kukko Counterstay - 22/1-



Note

Always replace the needle sleeve after removing it from the clutch housing or from the reverse shaft support.



1 - Clutch Housing

2 - Needle Sleeve

- ☐ Removing. Refer to
⇒ [Fig. "Removing the Needle Sleeve from the Clutch Housing"](#),
page 268
- ☐ Installing. Refer to
⇒ [Fig. "Installing the Needle Sleeve -A- into the Clutch Housing"](#),
page 269

3 - Reverse Drive Gear

4 - Circlip

- ☐ Always replace after removing

5 - Reverse Gear Wheel

- ☐ Remove before replacing the locking ring
- ☐ Collar faces reverse gear wheel

6 - Reverse Shaft

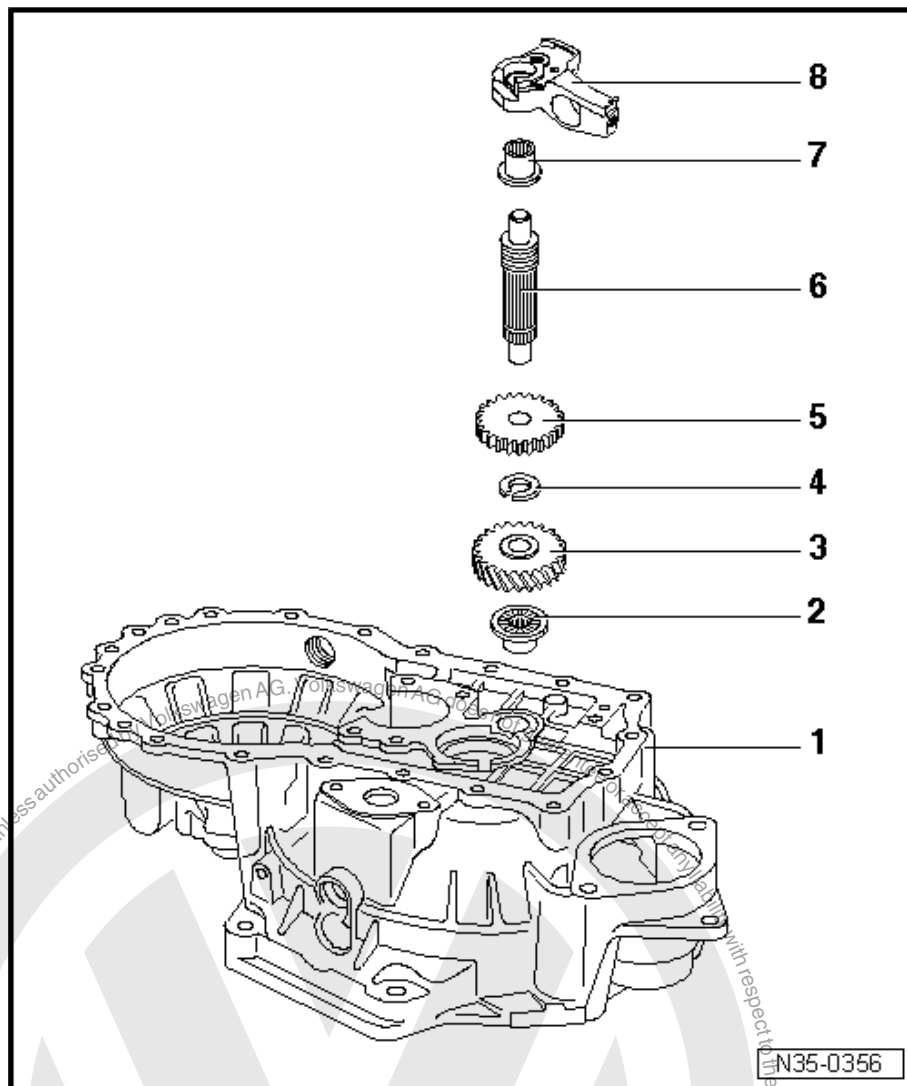
- ☐ Removing. Refer to
⇒ ["7.7 Transmission, Assembly Sequence, Disassembling and Assembling"](#), page 189

7 - Needle Sleeve

- ☐ Removing. Refer to
⇒ [Fig. "Removing the needle sleeve from the reverse shaft support"](#),
page 269
- ☐ Installing. Refer to
⇒ [Fig. "Installing the Needle Sleeve into the Reverse Shaft Support"](#), page 269

8 - Reverse Shaft Support

- ☐ Removing and Installing. Refer to
⇒ ["7.7 Transmission, Assembly Sequence, Disassembling and Assembling"](#), page 189



Removing the Needle Sleeve from the Clutch Housing

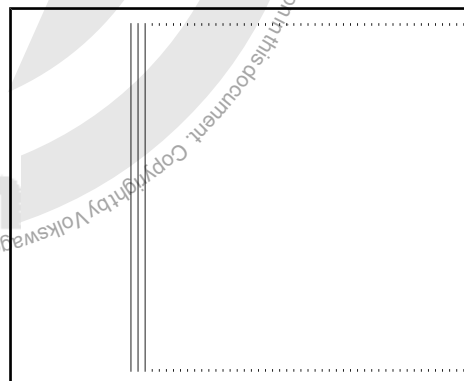
A - Counter Support , for example Puller - Kukko Counterstay - Kukko 22/1-

B - 14.5 to 18.5 mm Internal Puller , for example Puller - Kukko Internal - 14-19mm - Kukko 21/2-



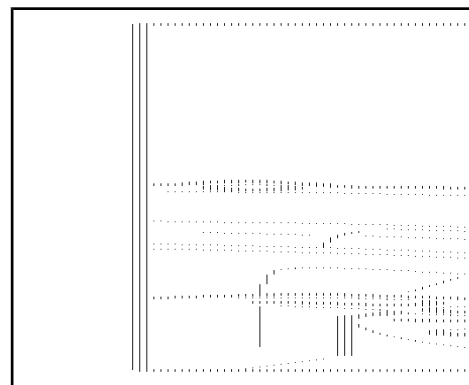
Note

The needle sleeve will get damaged when it is removed and must be replaced.

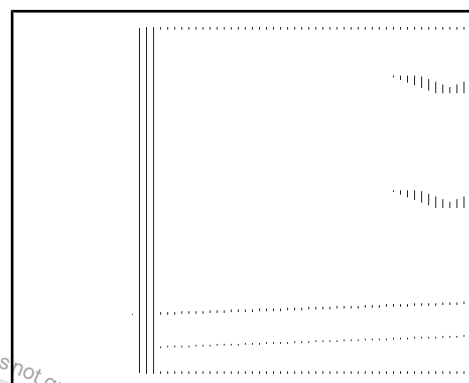




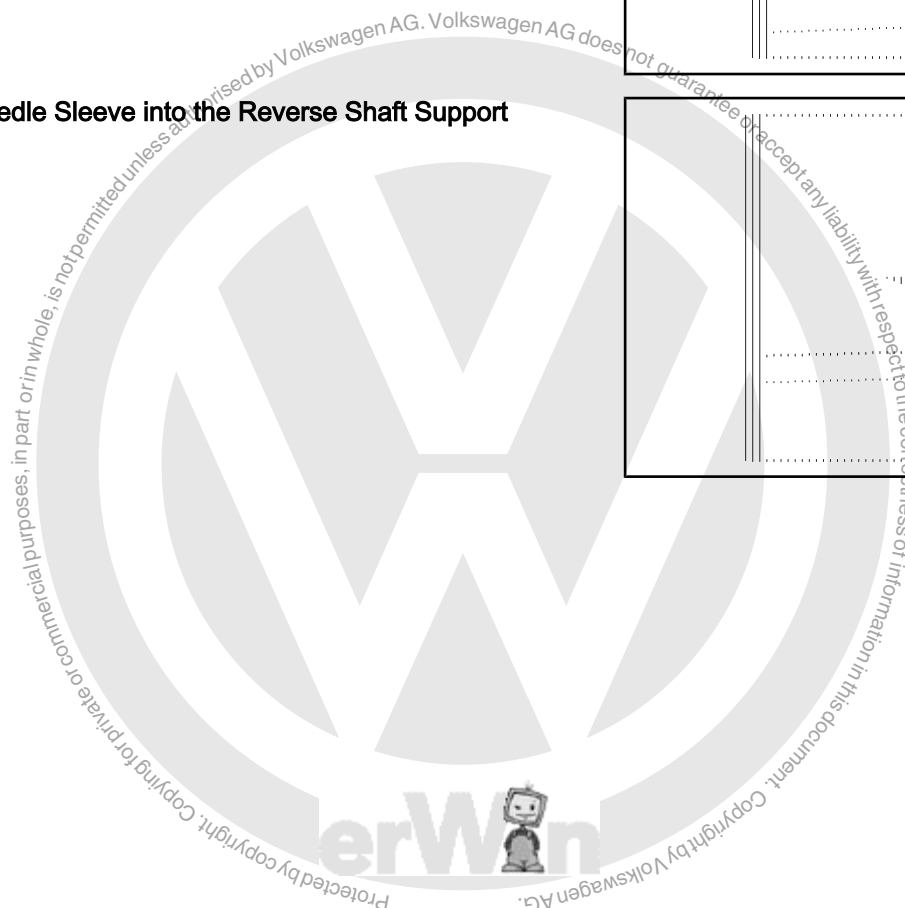
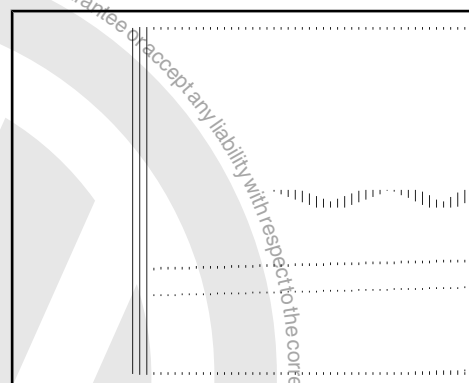
Installing the Needle Sleeve -A- into the Clutch Housing



Removing the needle sleeve from the reverse shaft support



Installing the Needle Sleeve into the Reverse Shaft Support

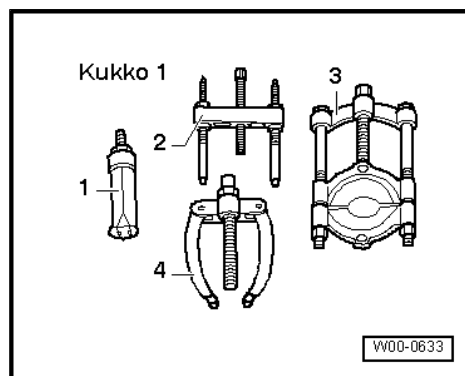




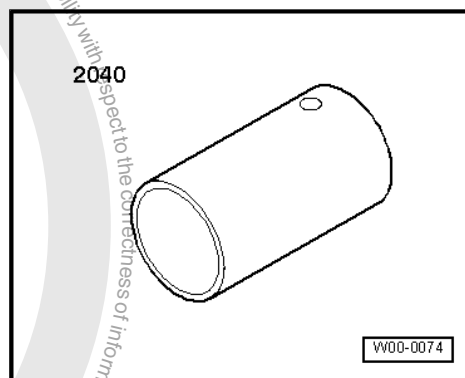
4 Special Tools

Special tools and workshop equipment required

- ◆ Replacement Stud (8 mm/10 mm) - 3114/2-
- ◆ Internal Puller - 21/6-



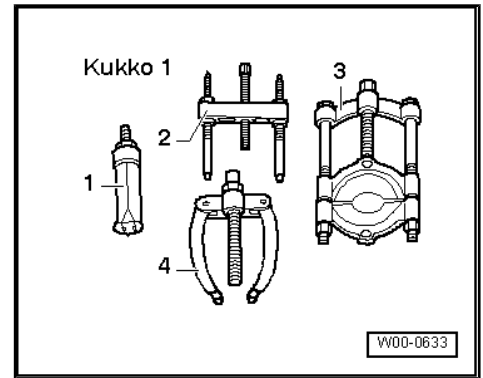
- ◆ Counter-Support - 22/2-
- ◆ Drift - VW295-
- ◆ Engine Support Adapter - VW295A-
- ◆ Pipe - 2040-



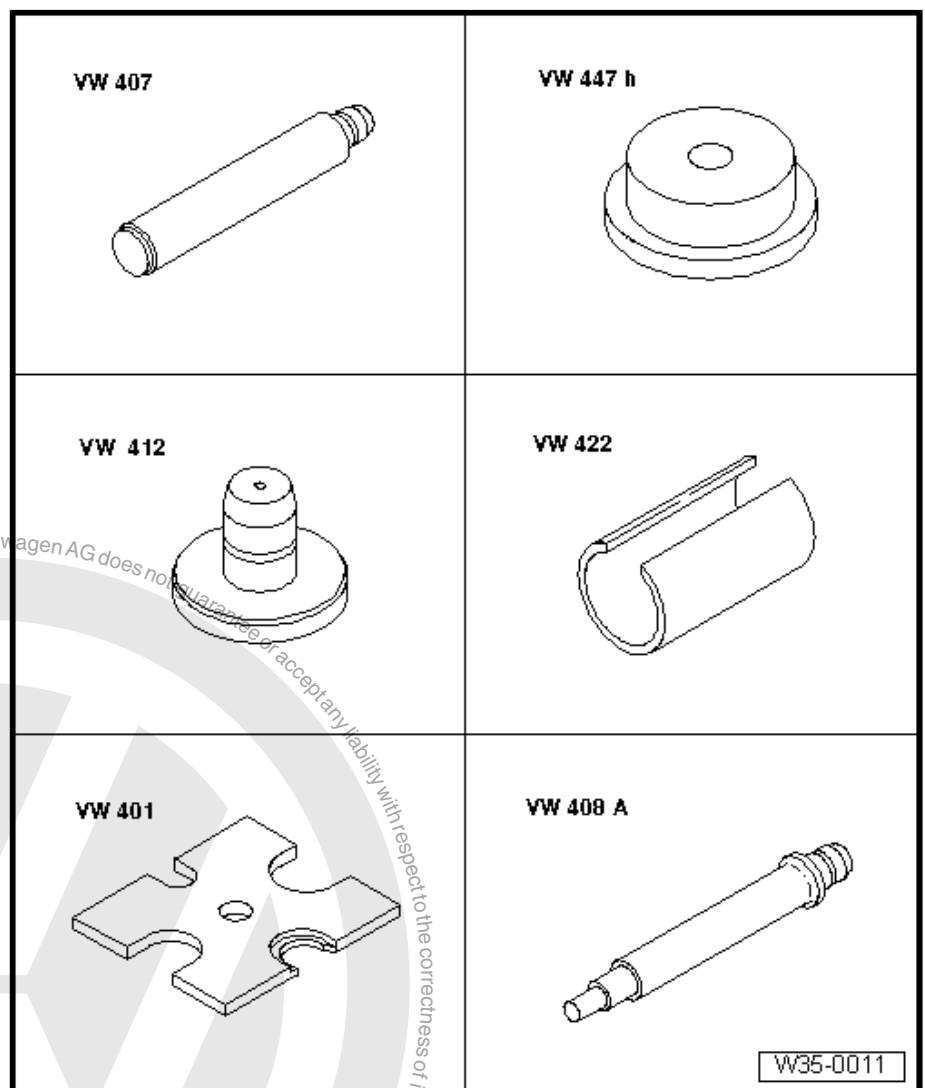
- ◆ Tapered Roller Bearing Puller - VAG1582-
- ◆ Grip - VAG1582/4-
- ◆ Grip - VAG1582/5-
- ◆ Seal Driver - 32-111-
- ◆ Punch - VW409-
- ◆ Support Channels - VW457-
- ◆ Pipe - VW519-
- ◆ Thrust Ring - VW429-
- ◆ Pipe - VW415A-
- ◆ Thrust Tube - VW455-
- ◆ Separating Tool - 17/2-



◆ Internal Puller - 21/2-



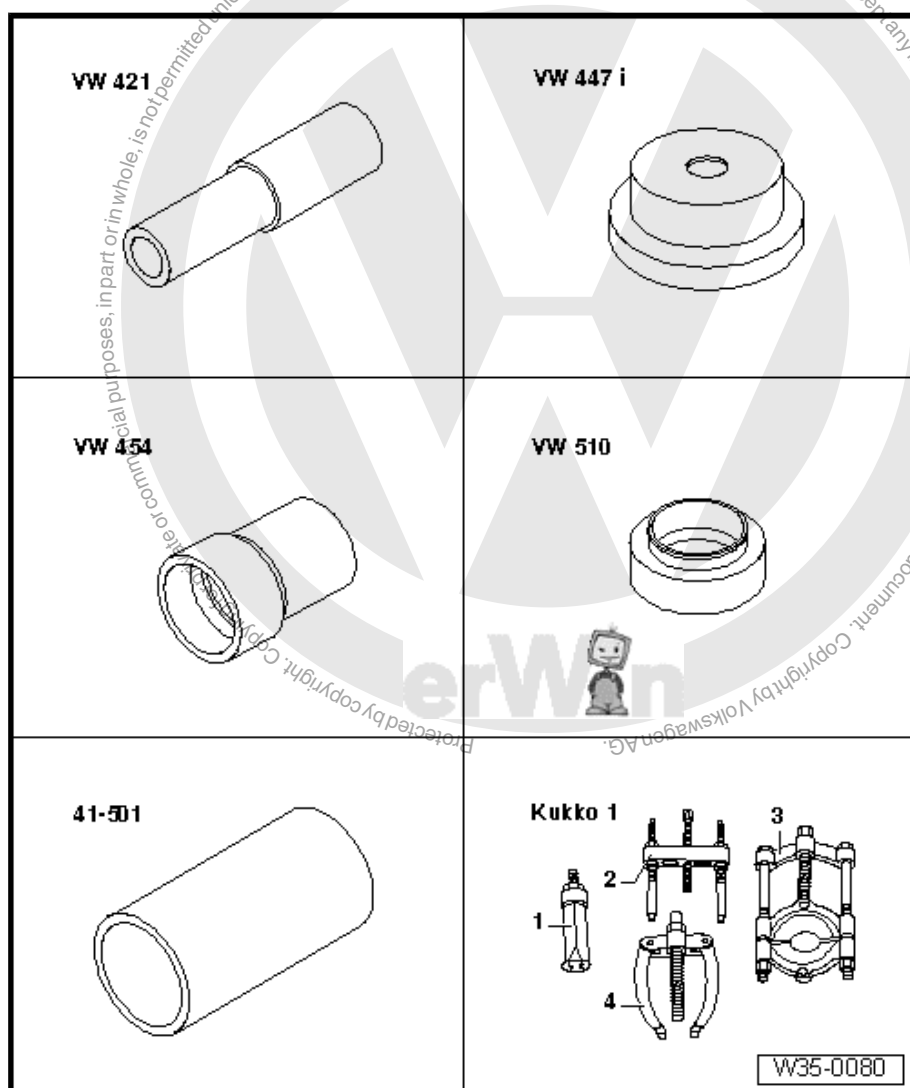
◆ Counter-Support - 22/1-



- ◆ Punch - VW407-
- ◆ Pressure washer - VW447H-
- ◆ Punch - VW412-
- ◆ Pipe - VW422-
- ◆ Pressure Plate - VW401-



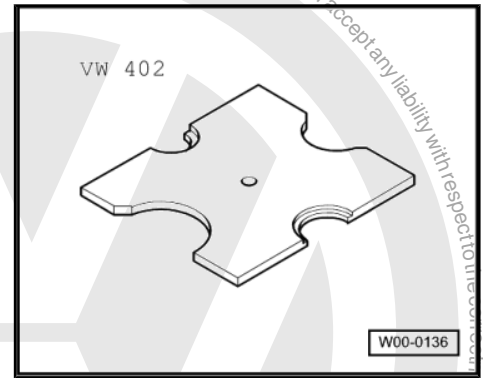
◆ Punch - VW408A-



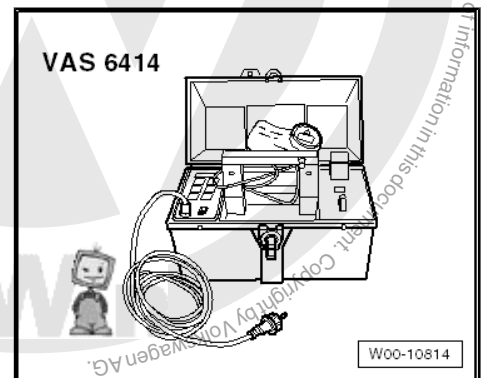
- ◆ Pipe - VW421-
- ◆ Pressure Washer - VW447I-
- ◆ Thrust Piece - VW454-
- ◆ Pressure Washer - VW510-
- ◆ Sleeve - 41-501-
- ◆ -3- Separating Tool - 17/1-

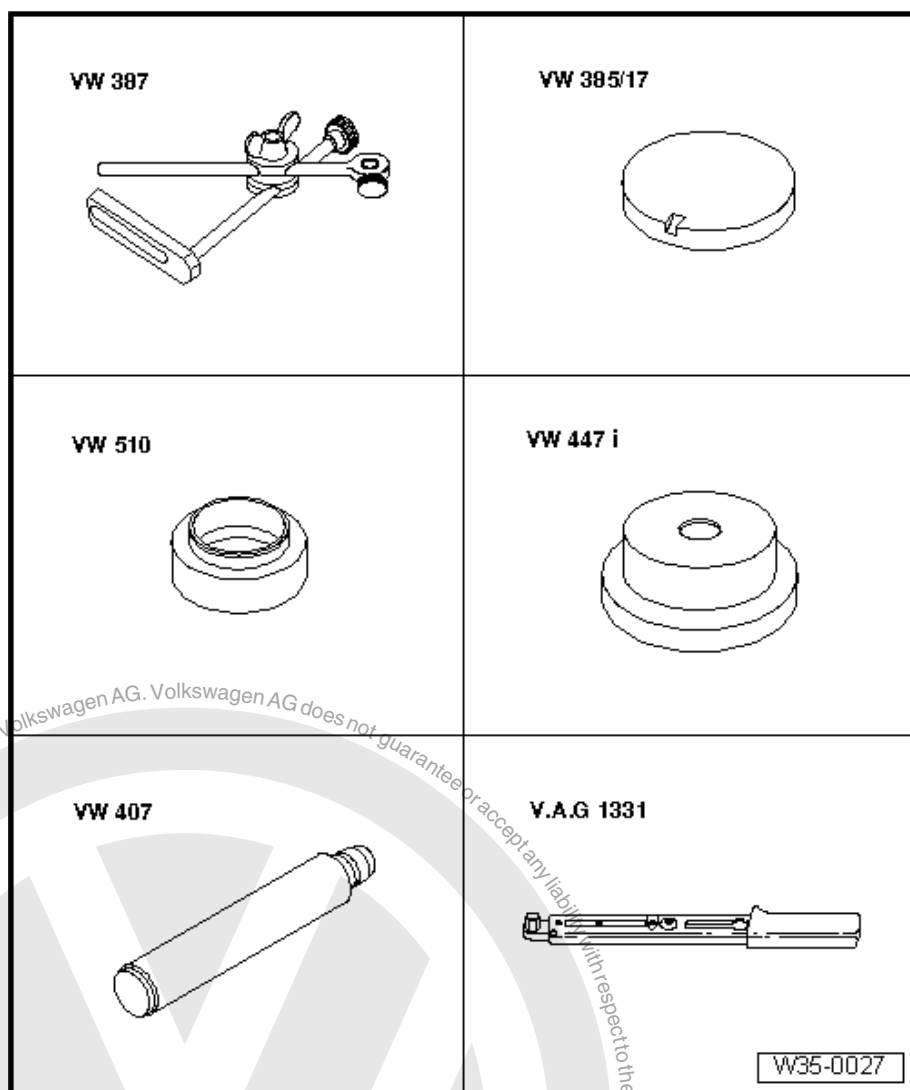


◆ Pressure Plate - VW402-

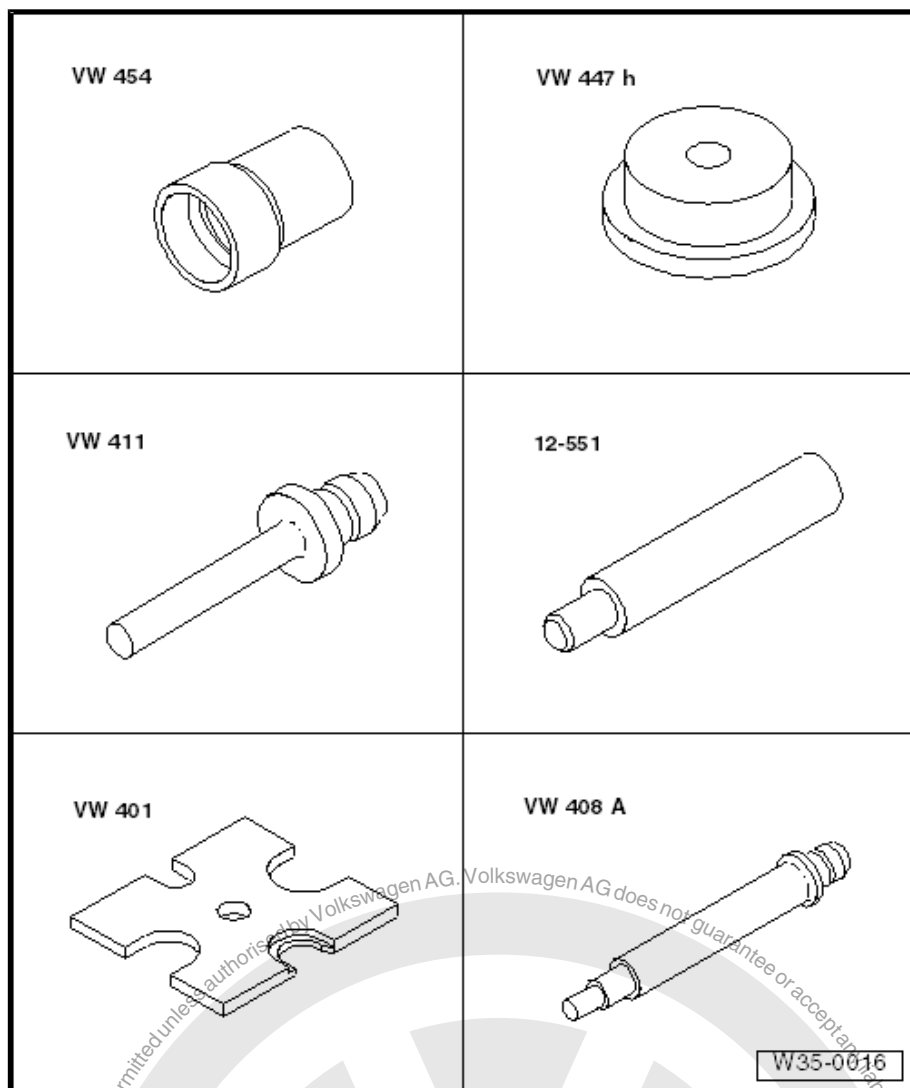


◆ Inductive Heater - VAS6414-





- ◆ Universal Dial Gauge Mount - VW387-
- ◆ Magnetic Plate 50 mm Diameter - VW385/17-
- ◆ Pressure Washer - VW510-
- ◆ Pressure Washer - VW447I-
- ◆ Punch - VW407-
- ◆ Torque Wrench - VAG1331-



- ◆ Thrust Piece - VW454-
- ◆ Pressure Washer - VW447H-
- ◆ Punch - VW411-
- ◆ Centering Mandrel - 12-551-
- ◆ Pressure Plate - VW401-
- ◆ Punch - VW408A-



39 – Final Drive, Differential

1 Seals

⇒ [“1.1 Component Location Overview - Seals”, page 276](#)

⇒ [“1.2 Left Flange Shaft Seal, Replacing”, page 277](#)

⇒ [“1.3 Differentiating Right Flange Shaft Seals”, page 278](#)

⇒ [“1.4 Seal, Two-Piece Right Flange Shaft Seal and Sleeve, Replacing”, page 278](#)

⇒ [“1.5 Seal and Sleeve, One-Piece Right Flange Shaft Seal and Sleeve, Replacing”, page 280](#)

1.1 Component Location Overview - Seals

1 - Seal

- ☐ For the input shaft
- ☐ Replacing. Refer to
⇒ [“1.3 Input Shaft Seal, Replacing”, page 250](#) .

2 - Seal

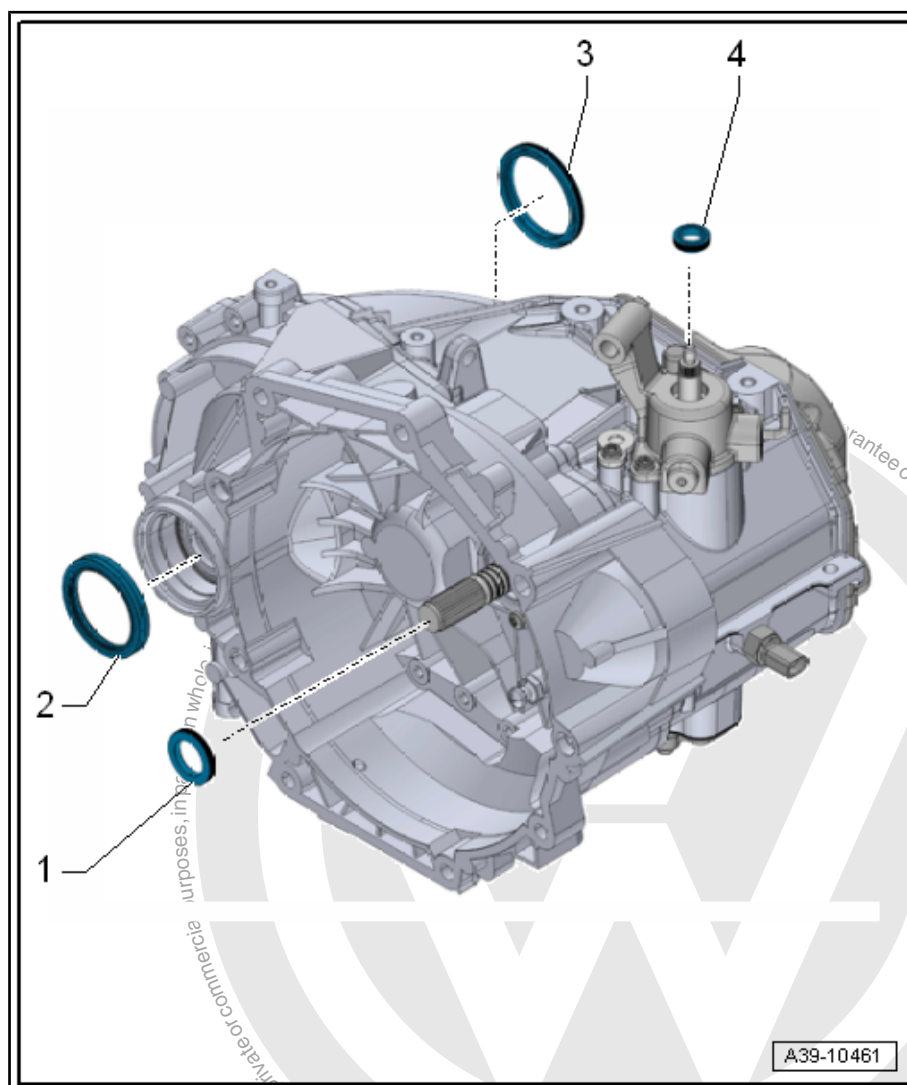
- ☐ For the right flange shaft
- ☐ Replacing. Refer to
⇒ [“1.4 Seal, Two-Piece Right Flange Shaft Seal and Sleeve, Replacing”, page 278](#) or
⇒ [“1.5 Seal and Sleeve, One-Piece Right Flange Shaft Seal and Sleeve, Replacing”, page 280](#) .

3 - Seal

- ☐ For the left flange shaft
- ☐ Replacing. Refer to
⇒ [“1.2 Left Flange Shaft Seal, Replacing”, page 277](#) .

4 - Seal

- ☐ For the selector shaft
- ☐ Pry out with a screwdriver
- ☐ Installing. Refer to
⇒ [Fig. “Installing the Seal”, page 209](#) .





1.2 Left Flange Shaft Seal, Replacing

⇒ ["1.2.1 Removing", page 277](#)

⇒ ["1.2.2 Installing", page 277](#)

⇒ ["1.2.3 Tightening Specification", page 278](#)

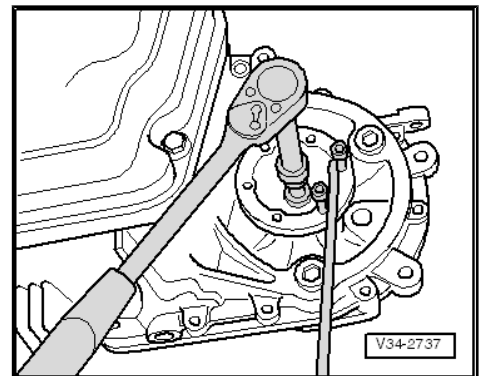
1.2.1 Removing

Special tools and workshop equipment required

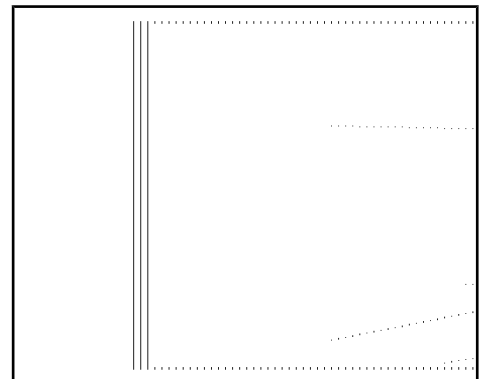
- ◆ Slide Hammer Set - VW771-
- ◆ Seal Installer - Flange Shaft Oil Seal - T10160-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-

Perform the following procedure:

- Remove the left wheel.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Remove the lower section of the left front wheel housing liner or the left front wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner .
- Turn the steering wheel to the left.
- Drive axle to flange shaft. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Removing and Installing
- Tie up the driveshaft as high as possible. Do not damage the paint on the driveshaft.
- Place the Drip Tray under the transmission.
- Remove bolts for flange shaft, by installing two bolts into the flange and counter-holding flange shaft using a tire iron.
- Remove the flange shaft with the pressure spring.



- Remove the flange shaft seal using the Slide Hammer Set - VW771- and the Slide Hammer Set - Hook - VW771/37- .



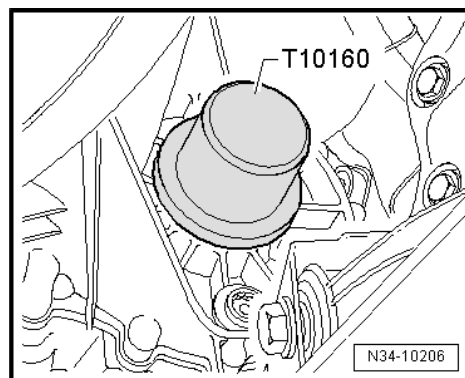
1.2.2 Installing

Special tools and workshop equipment required

- ◆ Slide Hammer Set - VW771-



- ◆ Seal Installer - Flange Shaft Oil Seal - T10160-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- Install the seal all the way in without tilting it.
- Fill the space between the sealing/dust lip halfway with Sealing Grease - G 052 128 A1- .
- Install the flange shaft.
- Attach the flange shaft with screw.
- Attach the drive axle to the transmission. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Removing and Installing .
- Check the transmission fluid level. Refer to ⇒ ["6 Transmission Fluid, Checking and Filling", page 176](#) .
- Install the lower section of the left front wheel housing liner or the left front wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner .
- Install the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Install the wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44 ; Wheel Installation Tightening Specifications .



1.2.3 Tightening Specification

Flange shaft to transmission (conical head bolt) -item 12-
⇒ [Item 12 \(page 287\)](#) .

1.3 Differentiating Right Flange Shaft Seals

The seal -1- for the right flange shaft is inside the sleeve -2-.

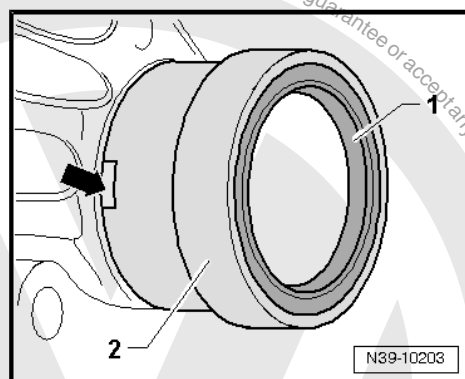
There are different versions:

The seal -1- and the sleeve -2- are two separate parts. Characteristics: the notches are arranged in circle in sleeve -arrow-.

Seal, Replacing. Refer to
⇒ ["1.4 Seal, Two-Piece Right Flange Shaft Seal and Sleeve, Replacing", page 278](#) .

The seal -1- and the sleeve -2- are a single part. Characteristics: no openings in the sleeve.

Replace the seal and the sleeve together. Refer to
⇒ ["1.5 Seal and Sleeve, One-Piece Right Flange Shaft Seal and Sleeve, Replacing", page 280](#) .



1.4 Seal, Two-Piece Right Flange Shaft Seal and Sleeve, Replacing

⇒ ["1.4.1 Removing", page 278](#)

⇒ ["1.4.2 Installing", page 279](#)

⇒ ["1.4.3 Tightening Specification", page 280](#)

1.4.1 Removing

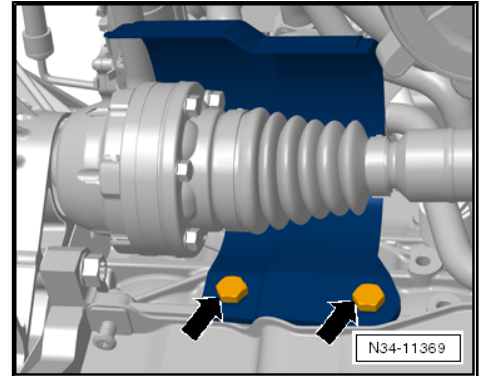
Special tools and workshop equipment required

- ◆ Seal Installer - Flange Shaft Oil Seal - T10160-
- ◆ Rear Wheel Bearing Kit - Cross Head - 3253/2-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-

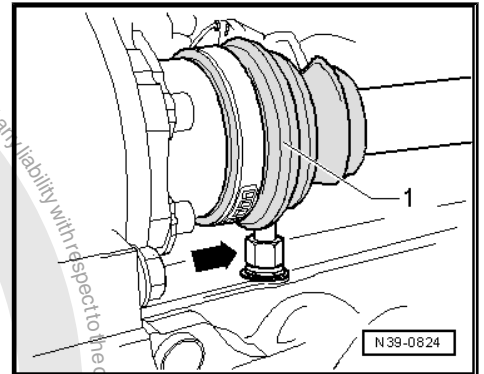


Perform the following procedure:

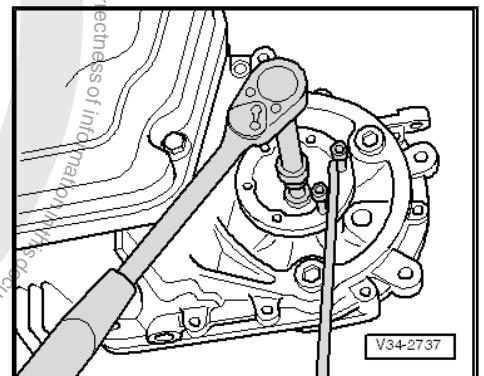
- Remove the noise insulation. Refer to ➤ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Turn steering as far as possible toward right.
- If equipped remove the drive axle heat shield -arrows-. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Overview and Servicing; Drive Axle Heat Shield .



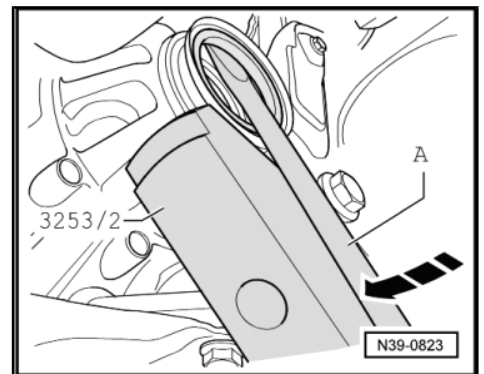
- Remove the driveshaft -1- from the flange shaft.
- Tie up the driveshaft as high as possible. Do not damage the paint on the driveshaft.
- Place the Drip Tray under the transmission and engine.
- Remove the turbocharger oil return line from the engine, if equipped -arrow-. Refer to ➤ Rep. Gr. 21 ; Turbocharger .



- Remove bolts for flange shaft, by installing two bolts into the flange and counter-holding flange shaft using a tire iron.
- Remove the flange shaft with the pressure spring.



- Pry out the seal -A- with a screwdriver. While doing so support the screwdriver on the Rear Wheel Bearing Kit - Cross Head - 3253/2- .



Note

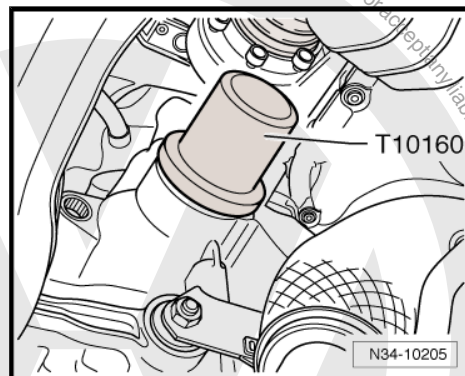
- ♦ *Be careful not to damage the sleeve otherwise there will be leaks.*
- ♦ *Replace the sleeve if it is damaged. Refer to ➤ Fig. "Prying out the Sleeve -arrow-" , page 206 .*

1.4.2 Installing

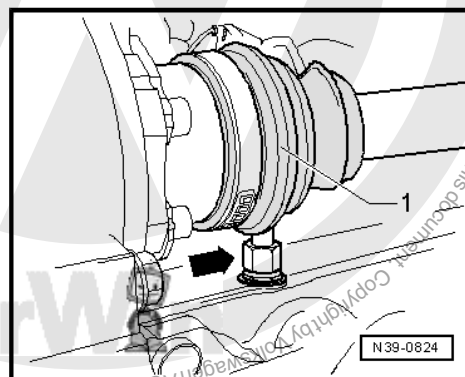
Special tools and workshop equipment required



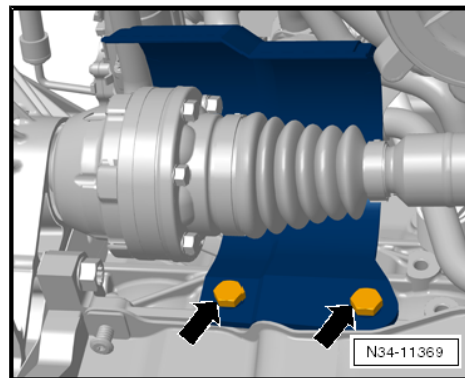
- ◆ Seal Installer - Flange Shaft Oil Seal - T10160-
- ◆ Rear Wheel Bearing Kit - Cross Head - 3253/2-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- Install the seal all the way in without tilting it.
- Fill the space between the sealing/dust lip halfway with Sealing Grease - G 052 128 A1- .
- Install the flange shaft.
- Attach the flange shaft with screw.



- Attach the turbocharger oil return line to the engine, if it was removed earlier -arrow- ⇒ Rep. Gr. 21 ; Turbocharger .
- Attach the drive axle -1- to the flange shaft. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Removing and Installing .



- If equipped install the drive axle heat shield -arrows-. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Overview and Servicing; Drive Axle Heat Shield .
- Check the transmission fluid level and fill if necessary. Refer to ⇒ ["6 Transmission Fluid, Checking and Filling", page 176](#) .
- Install the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .



1.4.3 Tightening Specification

Flange shaft to transmission (conical head bolt) -item 12-
⇒ [Item 12 \(page 287\)](#) .

1.5 Seal and Sleeve, One-Piece Right Flange Shaft Seal and Sleeve, Replacing

⇒ ["1.5.1 Removing", page 280](#)

⇒ ["1.5.2 Installing", page 282](#)

⇒ ["1.5.3 Tightening Specification", page 283](#)

1.5.1 Removing

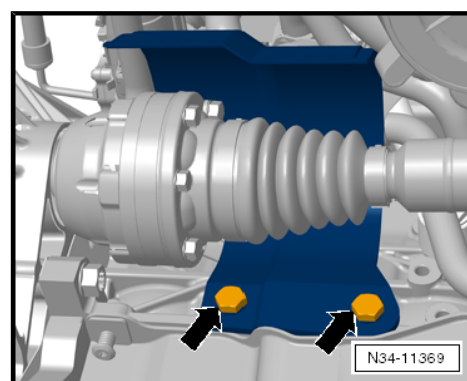
Special tools and workshop equipment required



- ◆ Seal Installer - One-Piece Seal - T10148-
- ◆ Spindle from the Seal Installer - Driver Set - 3066-
- ◆ Slide Hammer Set - VW771-
- ◆ Slide Hammer Set - Hook - VW771/37-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Drip Tray

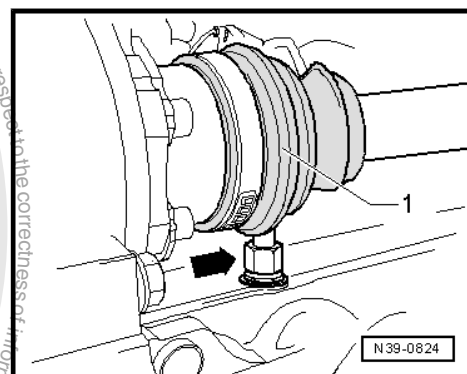
Perform the following procedure:

- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Turn steering as far as possible toward right.
- If equipped remove the drive axle heat shield -arrows-. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Overview and Servicing; Drive Axle Heat Shield .

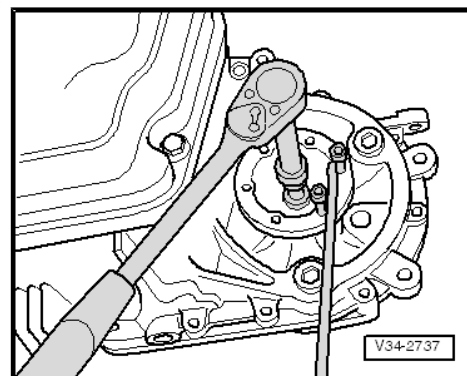


Remove the driveshaft -1- from the flange shaft.

- Tie up the driveshaft as high as possible. Do not damage the paint on the driveshaft.
- Place the Drip Tray under the transmission and engine.
- Remove the turbocharger oil return line from the engine, if equipped -arrow-. Refer to ⇒ Rep. Gr. 21 ; Turbocharger .



- Remove bolts for flange shaft, by installing two bolts into the flange and counter-holding flange shaft using a tire iron.
- Remove the flange shaft with the pressure spring.

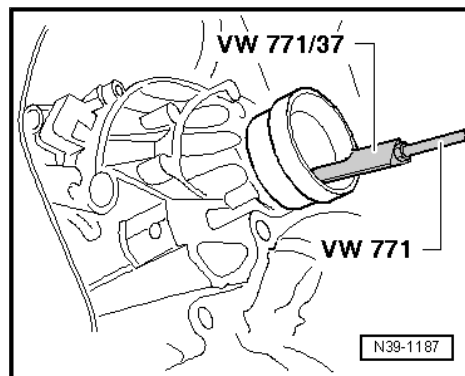




- Remove the seal and the sleeve together.

A ridge is located on the internal diameter of the sleeve.

- Install the Slide Hammer Set - Hook - VW771/37- directly behind the ridge inside the sleeve.
- Using force, push the Slide Hammer Set - Hook - VW771/37- into the sleeve.



1.5.2 Installing

Special tools and workshop equipment required

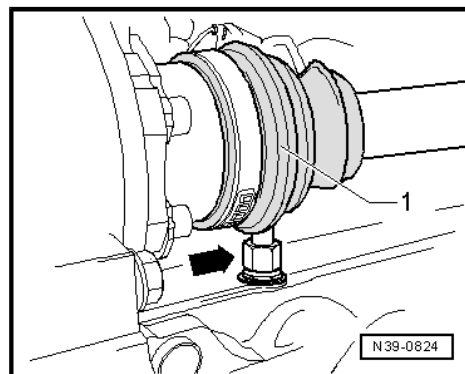
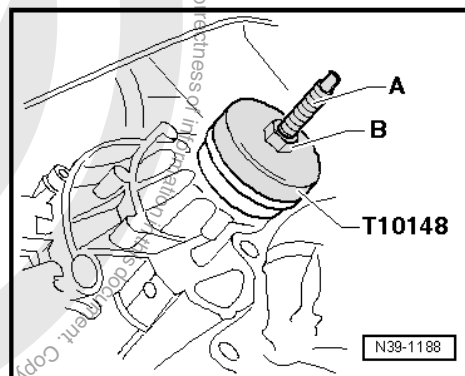
- ◆ Seal Installer - One-Piece Seal - T10148-
- ◆ Spindle from the Seal Installer - Driver Set - 3066-
- ◆ Slide Hammer Set - VW771-
- ◆ Slide Hammer Set - Hook - VW771/37-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Drip Tray

- Clean the seal seat inside the transmission.
- Install the seal and the sleeve together.

A - Install the Spindle on the Seal Installer - Driver Set - 3066- into the threaded piece in the differential.

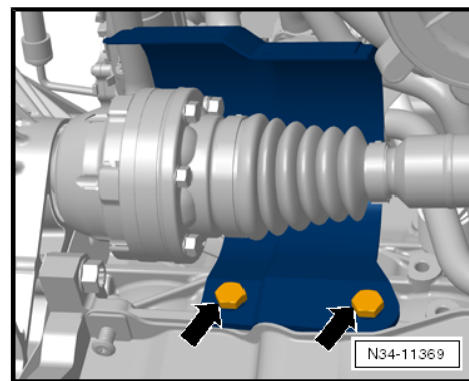
B - M12 Nut

- Turn the nut -B- and pull the seal with the sleeve all the way over the Seal Installer - One-Piece Seal - T10148- .
- Fill the space between the sealing/dust lip halfway with Sealing Grease - G.052 128 A1- .
- Install the flange shaft.
- Attach the flange shaft with screw.
- Attach the turbocharger oil return line to the engine, if it was removed earlier -arrow- ⇒ Rep. Gr. 21 ; Turbocharger .
- Attach the driveshaft -1- to the flange shaft. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Removing and Installing .



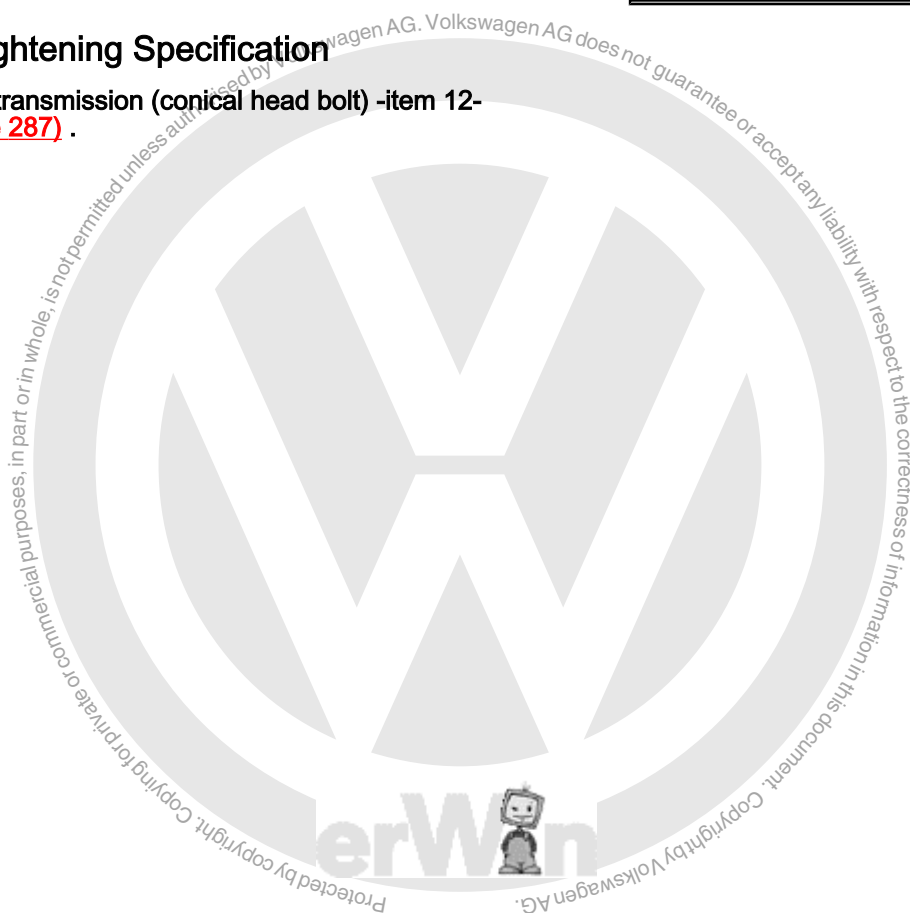


- If equipped install the drive axle heat shield -arrows-. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axles, Overview and Servicing; Drive Axle Heat Shield .
- Check the transmission fluid level and fill if necessary. Refer to ⇒ ["6 Transmission Fluid, Checking and Filling", page 176](#) .
- Install the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .



1.5.3 Tightening Specification

Flange shaft to transmission (conical head bolt) -item 12-
⇒ [Item 12 \(page 287\)](#) .





2 Adjustment Overview



Note

If repairs have been performed on the transmission, it is only necessary to adjust the input shaft, output shaft or differential if components have been replaced which have a direct effect on the adjustment of the transmission. Refer to Table to avoid any unnecessary adjusting.

		to be adjusted:		
		Input Shaft · Refer to ⇒ "1.2 Input Shaft, Adjusting", page 247 ·	Output Shaft · Refer to ⇒ "2.2 Output Shaft, Adjusting", page 263 ·	Differential Refer to ⇒ "3.2 Differential, Adjusting", page 291 ·
Replaced part:	Transmission Housing	x		x
	Clutch Housing	x	x	x
	Input Shaft	x		
	Output Shaft		x	
	Differential housing			x
	Output shaft tapered roller bearing	x		
	Output shaft tapered roller bearing		x	
	Differential tapered roller bearing			x
	4th Gear Wheel	x		



3 Differential

⇒ [“3.1 Differential, Disassembling and Assembling”, page 285](#)

⇒ [“3.2 Differential, Adjusting”, page 291](#)

3.1 Differential, Disassembling and Assembling

Special tools and workshop equipment required

- ◆ Puller - Taper Roller Bearing - VAG1582-
- ◆ Puller - Taper Roller Bearing - Adapter 3 - VAG1582/3-
- ◆ Press Piece - Multiple Use - VW412-
- ◆ Press Plate - VW401-
- ◆ Press Plate - VW402-
- ◆ Press Piece - Rod - VW408A-
- ◆ Press Piece - Multiple Use - VW473-
- ◆ Press Piece - Multiple Use - 30-205-
- ◆ Bearing Installer - Wheel Bearing - 3144-
- ◆ Bearing Installer - Taper Roller Bearing - 2007-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-
- ◆ Inductive Heater - VAS6414-
- ◆ Puller - Kukko Internal - 46-56mm - 21/7-
- ◆ Puller - Kukko Counterstay - 22/2-



Note

- ◆ *To install, heat the bearing inner races/tapered roller bearing to approximately 100 °C with Inductive Heater - VAS6414-. Wear protective gloves.*
- ◆ *Replace both tapered roller bearings together.*
- ◆ *Adjust the differential when replacing the tapered roller bearing, differential housing, transmission housing or clutch housing. Refer to ⇒ [“2 Adjustment Overview”, page 284](#).*



1 - Transmission Housing

2 - Shim

- ☐ For the differential
- ☐ Selecting thickness. Refer to
⇒ [“3.2 Differential, Adjusting”, page 291](#) .

3 - Outer Race/Tapered Roller Bearing

- ☐ Removing. Refer to
⇒ [Fig. “Removing the Outer Race/Tapered Roller Bearing from the Transmission Housing”, page 289](#)
- ☐ Installing. Refer to
⇒ [Fig. “Installing the Outer Race/Tapered Roller Bearing into the Transmission Housing”, page 289](#)

4 - Bearing Inner Race/Taper Roller Bearing

- ☐ Removing. Refer to
⇒ [Fig. “Removing the Bearing Inner Race/Taper Roller Bearing”, page 288](#)
- ☐ Installing. Refer to
⇒ [Fig. “Installing the Bearing Inner Race/Taper Roller Bearing”, page 289](#)

5 - Differential Housing

- ☐ With final drive gear wheel
- ☐ Thrust washer union fitted to differential housing. Refer to
⇒ [Fig. “On Some Transmissions, the Thrust Washer Union has a Ridge -A-”, page 291](#)
- ☐ Spring pin hole adapted to the length of the spring pin. Refer to
⇒ [Fig. “Differential Housing Allocation”, page 290](#)
- ☐ Allocation. Refer to the Parts Catalog.

6 - Bearing Inner Race/Taper Roller Bearing

- ☐ Removing. Refer to ⇒ [Fig. “Removing the Bearing Inner Race/Taper Roller Bearing”, page 288](#)
- ☐ Installing. Refer to ⇒ [Fig. “Installing the Bearing Inner Race/Taper Roller Bearing”, page 289](#)

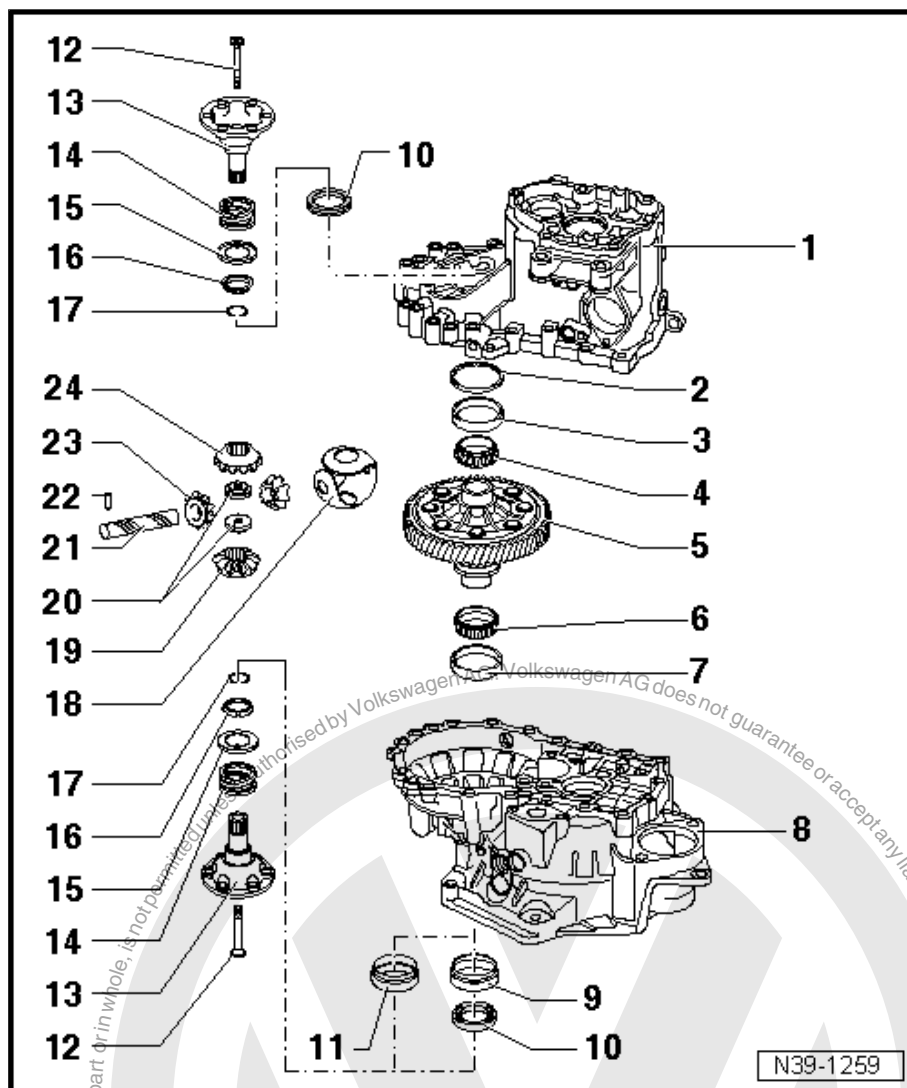
7 - Outer Race/Tapered Roller Bearing

- ☐ Removing. Refer to
⇒ [Fig. “Removing the Outer Race/Tapered Roller Bearing from the Clutch Housing”, page 288](#)
- ☐ Installing. Refer to
⇒ [Fig. “Installing Outer Race/Tapered Roller Bearing into the Clutch Housing”, page 288](#)

8 - Clutch Housing

9 - Sleeve

- ☐ For mounting the seal -item 10- ⇒ [Item 10 \(page 287\)](#)
- ☐ Removing and Installing. Refer to
⇒ [“8 Transmission Housing and Clutch Housing, Servicing”, page 202](#) .





10 - Seal

- ☐ Left flange shaft seal, inserting with transmission installed. Refer to
⇒ ["1.2 Left Flange Shaft Seal, Replacing", page 277](#)
- ☐ Right flange shaft seal, inserting with transmission installed (right flange shaft and sleeve seal consist of two parts). Refer to ⇒ ["1.4 Seal, Two-Piece Right Flange Shaft Seal and Sleeve, Replacing", page 278](#)

11 - Seal and Sleeve One-Piece

- ☐ If the seal is damaged, then replace both the seal and sleeve. Refer to
⇒ ["1.5 Seal and Sleeve, One-Piece Right Flange Shaft Seal and Sleeve, Replacing", page 280](#) .

12 - Bolt

- ☐ 25 Nm
- ☐ Install with the threaded piece -item 20- ⇒ [Item 20 \(page 287\)](#)

13 - Flange Shaft

- ☐ Left Flange Shaft, Removing and Installing. Refer to
⇒ ["1.2 Left Flange Shaft Seal, Replacing", page 277](#) .
- ☐ Right flange shaft, Removing and Installing. Refer to
⇒ ["1.4 Seal, Two-Piece Right Flange Shaft Seal and Sleeve, Replacing", page 278](#) or
⇒ ["1.5 Seal and Sleeve, One-Piece Right Flange Shaft Seal and Sleeve, Replacing", page 280](#) .

14 - Flange Shaft Pressure Spring

- ☐ Installed behind the flange shafts

15 - Thrust Washer

- ☐ Installation position. Refer to
⇒ [Fig. "Installed Position: Tapered Ring Thrust Washer -1- " , page 291](#) .

16 - Tapered Ring

- ☐ With grooves for the thrust washer
- ☐ Installed position: ball toward the differential housing

17 - Circlip

- ☐ Holds the tapered ring, the thrust washer and the pressure spring when the flange shaft is removed

18 - Thrust Washer Union

- ☐ Install with transmission fluid
- ☐ The thrust washer union has a ridge on some transmissions. Refer to
⇒ [Fig. "On Some Transmissions, the Thrust Washer Union has a Ridge -A- " , page 291](#)

19 - Large Differential Bevel Gear

- ☐ Installing. Refer to
⇒ [Fig. "Installing the Differential Planetary Gears and Differential Bevel Gear Axle" , page 291](#) .

20 - Threaded Piece

- ☐ Installing. Refer to
⇒ [Fig. "Installing the Differential Planetary Gears and Differential Bevel Gear Axle" , page 291](#) .

21 - Differential Bevel Gear Axle

- ☐ Removing together with short spring pin. Refer to
⇒ [Fig. "Spring Pin with Surrounding Groove \(Short Spring Pin\): Removing and Installing" , page 290](#)
- ☐ Removing together with long spring pin. Refer to
⇒ [Fig. "Spring Pin without Surrounding Groove \(Long Spring Pin\), Removing: Press Out the Differential Bevel Gear Axle" , page 290](#)
- ☐ Installing. Refer to
⇒ [Fig. "Installing the Differential Planetary Gears and Differential Bevel Gear Axle" , page 291](#) .

22 - Adapter sleeve

- ☐ To secure the differential bevel gear axle
- ☐ Different lengths of spring pins are installed
- ☐ Differentiating the spring pins. Refer to ⇒ [Fig. "Differentiating the Spring Pins" , page 289](#)
- ☐ Short tension sleeve: removing and installing. Refer to
⇒ [Fig. "Spring Pin with Surrounding Groove \(Short Spring Pin\): Removing and Installing" , page 290](#)



- ❑ Long tension sleeve: sheared off when removing. Refer to
⇒ Fig. [“Spring Pin without Surrounding Groove \(Long Spring Pin\), Removing: Press Out the Differential Bevel Gear Axle”](#) , page 290
- ❑ Long tension sleeve: installing. Refer to
⇒ Fig. [“Spring Pin without Surrounding Groove \(Long Spring Pin\), Installing”](#) , page 290

23 - Small Differential Bevel Gear

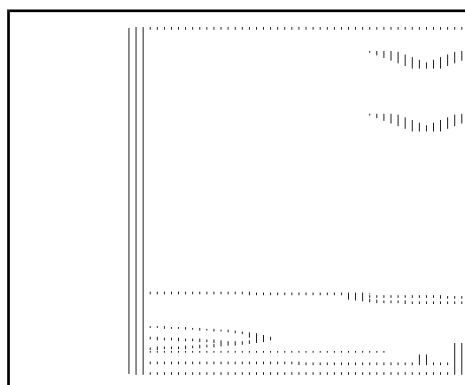
- ❑ Installing. Refer to
⇒ Fig. [“Installing the Differential Planetary Gears and Differential Bevel Gear Axle”](#) , page 291 .

24 - Large Differential Bevel Gear

- ❑ Installing. Refer to
⇒ Fig. [“Installing the Differential Planetary Gears and Differential Bevel Gear Axle”](#) , page 291 .

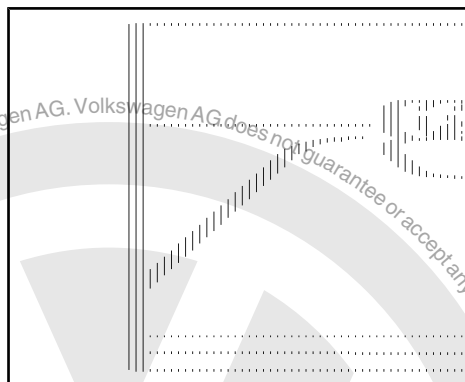
Removing the Outer Race/Tapered Roller Bearing from the Clutch Housing

- Remove the right flange shaft seal or the sleeve for the right seal/flange shaft beforehand.



Installing Outer Race/Tapered Roller Bearing into the Clutch Housing

There is no adjusting shim on the side of the clutch housing.



Removing the Bearing Inner Race/Taper Roller Bearing

- Mount the Press Piece - Multiple Use 40-105- on the differential housing before removing the puller.



Note

Both tapered roller bearing inner races are pulled off from the differential housing in the same way.



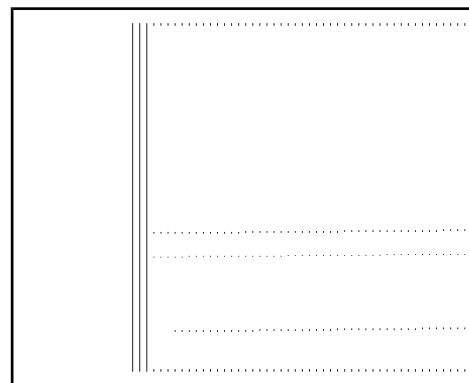


Installing the Bearing Inner Race/Taper Roller Bearing



Note

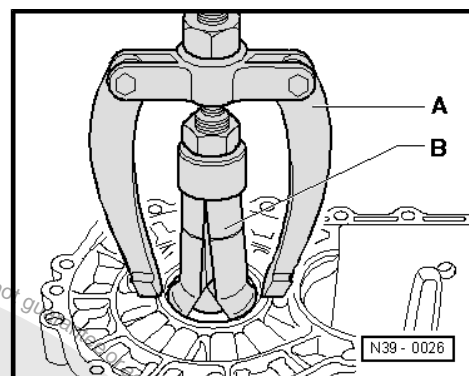
Both tapered roller bearing inner races are pressed on from the differential housing in the same way.



Removing the Outer Race/Tapered Roller Bearing from the Transmission Housing

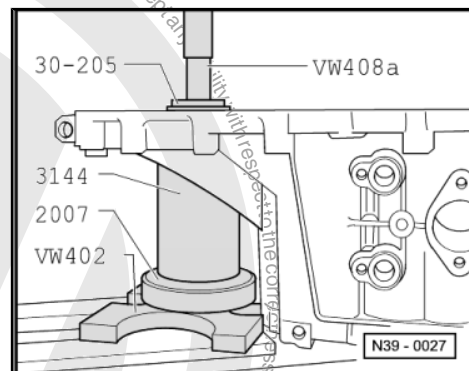
A - Counter Support , for example, Puller - Kukko Counterstay - 22/2-

B - Internal Puller 46 to 58 mm , for example, Puller - Kukko Internal - 46-56mm - 21/7-



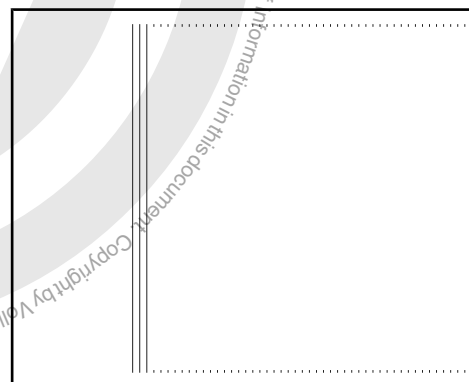
Installing the Outer Race/Tapered Roller Bearing into the Transmission Housing

- Install the adjusting shim under the outer race.
- Support the transmission housing with the Bearing Installer - Wheel Bearing- 3144- directly under the bearing mount.



Differentiating the Spring Pins

Dimension "a" mm	Identifying feature
28.5 (short tension sleeve), Removing and installing. Refer to ⇒ Fig. "Spring Pin with Surrounding Groove (Short Spring Pin): Removing and Installing" , page 290	Groove all the way around -arrows-
36.0 (long spring pin), Removing. Refer to ⇒ Fig. "Spring Pin without Surrounding Groove (Long Spring Pin), Removing: Press Out the Differential Bevel Gear Axle" , page 290 , Installing. Refer to ⇒ Fig. "Spring Pin without Surrounding Groove (Long Spring Pin), Installing" , page 290	no surrounding groove



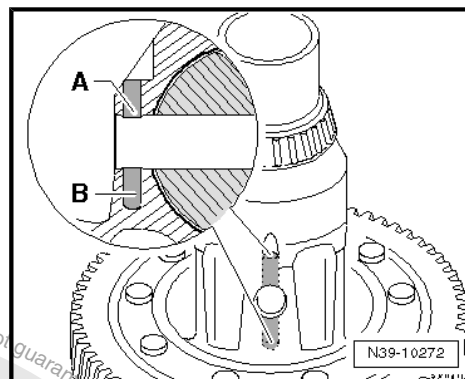


Differential Housing Allocation

- Check the hole in the differential housing for the spring pin.

The hole in the differential housing was modified due to the longer spring pin.

Hole	Spring Pin Length (mm)
-A-	28.5 (short spring pin)
-A and B-	36.0 (long spring pin)



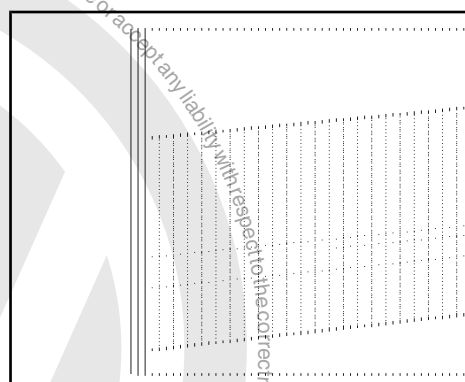
Spring Pin with Surrounding Groove (Short Spring Pin): Removing and Installing

Removing

- Cover inner race/tapered roller bearing in order to prevent possible damage and entry of shavings.
- Remove the spring pin using a chisel.

Installing

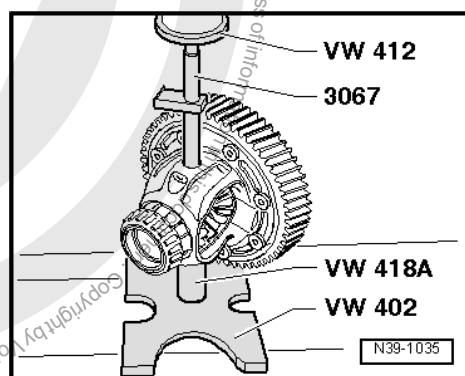
- Drive into the differential housing up to the stop.



Spring Pin without Surrounding Groove (Long Spring Pin), Removing: Press Out the Differential Bevel Gear Axle

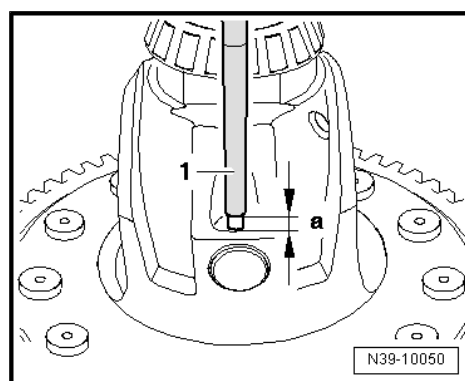
Spring pin is sheared off when it is removed.

- Drive remaining part of roller pin out of differential housing.



Spring Pin without Surrounding Groove (Long Spring Pin), Installing

- Align the hole in the differential bevel gear axle to the hole in the differential housing.
- Install the new spring pin to dimension -a- = 3.0 mm using a drift -1-.
- The spring pin must not come in contact with the transmission when the differential housing is installed.



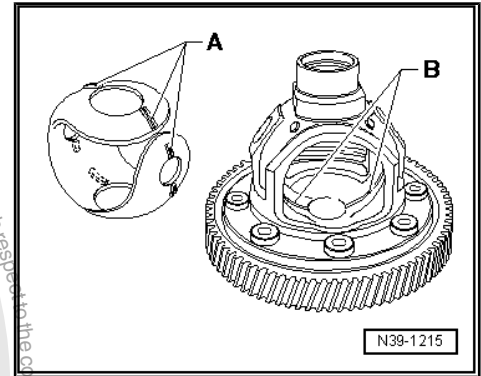


On Some Transmissions, the Thrust Washer Union has a Ridge -A-.

Also the differential housing has a groove -B- all the way around it.

Insert thrust washer union with transmission fluid.

- Install the thrust washer union so that it fits into the groove -B- in the differential housing.

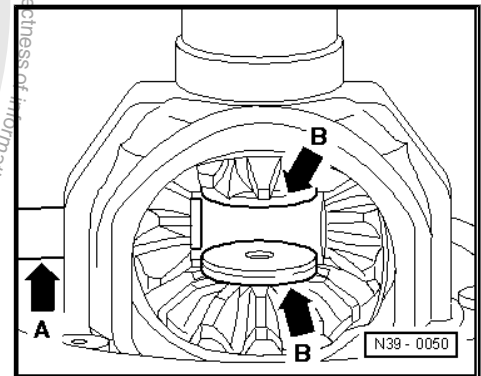


Installing the Differential Planetary Gears and Differential Bevel Gear Axle

- Insert thrust washer union with transmission fluid.
- Install and secure both large differential planetary gears, for example, with a flange shaft.

Insert the small differential planetary gears 180° offset and pivot them into position.

- Press the differential bevel gear axle -arrow A- up to the first small differential bevel gear.
- Insert threaded pieces -arrow B- into the large differential planetary gears.



Installed position: shoulder faces the differential bevel gear

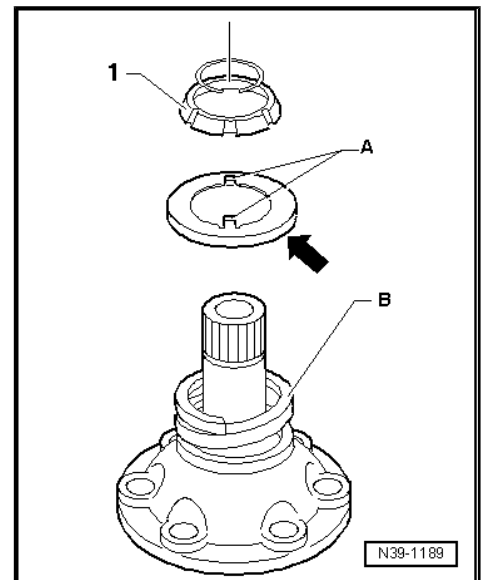
- Install the differential bevel gear axle up the end position and secure it with a new spring pin.

Installed Position: Tapered Ring Thrust Washer -1-

The collar -arrow- faces the pressure spring -B-.

Some transmissions are not equipped with ridges -A-.

The ridges -A- face the tapered ring -1-.



3.2 Differential, Adjusting

⇒ **“3.2.1 Determining the Shim”, page 292**

Special tools and workshop equipment required

- ◆ Measuring Set - Magnetic Plate - 50mm - VW385/17-
- ◆ Dial Gauge Holder - VW387-
- ◆ Press Piece - Rod - VW407-
- ◆ Press Piece - Multiple Use - 30-205-



- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Puller - Kukko Internal - 46-56mm - 21/7-
- ◆ Puller - Kukko Counterstay - 22/2-
- ◆ Dial Gauge

A new differential adjustment is required when the following components have been replaced:

- ◆ Transmission Housing
- ◆ Clutch Housing
- ◆ Differential housing

or the

- ◆ Differential tapered roller bearing

Adjustment Overview. Refer to
⇒ ["2 Adjustment Overview", page 284](#) .

Perform the following procedure:

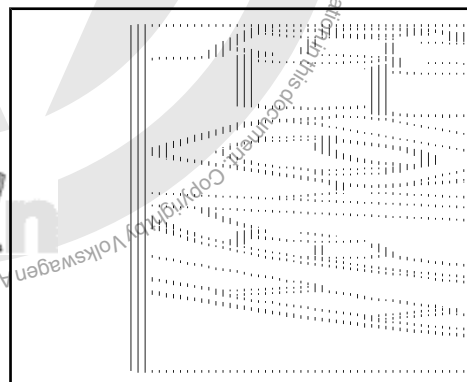
- Press tapered roller bearing outer race into transmission housing without shim, using Press Piece - Multiple Use - 30-205- . Refer to
⇒ [Fig. "Installing the Outer Race/Tapered Roller Bearing into the Transmission Housing", page 289](#) .



Note

*Bearing inner- and outer race of tapered roller bearing are paired.
Do not interchange them.*

- Press outer race/tapered roller bearing into the clutch housing using the Press Piece - Multiple Use - 30-205- . Refer to
⇒ [Fig. "Installing Outer Race/Tapered Roller Bearing into the Clutch Housing", page 288](#) .
- Insert differential into clutch housing.
- Mount the transmission housing and tighten the five bolts to 25 Nm.
- Attach the Dial Gauge Holder - VW387- and set the dial gauge to "0" with 1 mm preload.
- Move differential up and down, read off play on dial gauge and note. (example: 0.70 mm).



3.2.1 Determining the Shim

The specified bearing pre-load is obtained by adding a constant pre-load figure of 0.25 mm to the reading obtained.

Example:

Measured value	0.70 mm
+ Preload (constant value)	0.25 mm



Shim thickness = 0.95 mm

Example:

Bearing clearance measured value	Adjustment shim thickness according to the table
0.70 mm	0.95 mm

Shim Table

Bearing play	Shim
Measured value (mm)	Thickness (mm)
0.303 to 0.449	0.650
0.450 to 0.499	0.700
0.500 to 0.549	0.750
0.550 to 0.599	0.800
0.600 to 0.649	0.850
0.650 to 0.699	0.900
0.700 to 0.749	0.950
0.750 to 0.799	1.000
0.800 to 0.849	1.050
0.850 to 0.899	1.100
0.900 to 0.949	1.150
0.950 to 0.999	1.200
1.000 to 1.049	1.250
1.050 to 1.099	1.300
1.100 to 1.149	1.350
1.150 to 1.199	1.400



Note

Allocate the shims. Refer to the Parts Catalog.

- Remove the transmission housing and remove the tapered roller bearing outer race from the transmission housing.

A - Counter Support , for example, Puller - Kukko Counterstay - Kukko 22/2-

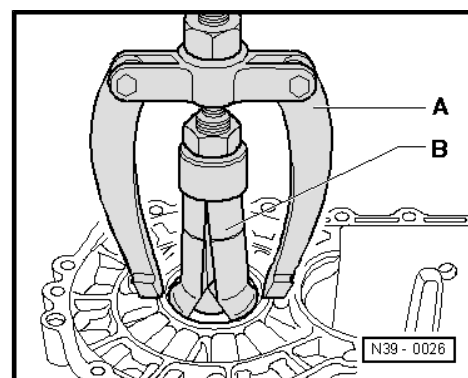
B - Internal Puller 46 to 58 mm , for example, Puller - Kukko Internal - 46-56mm - Kukko 21/7-

- Install the shim with the correct thickness, thickest shim first.

If the measured shim thickness is larger than those listed in the table, then install two shims that add up to the necessary thickness.

Tolerance variations make it possible to find the exact shim thickness required.

- Install the tapered roller bearing inner race again (refer to ➤ Fig. ““Installing the Outer Race/Tapered Roller Bearing into the Transmission Housing.”“, page 289) and install the transmission housing.

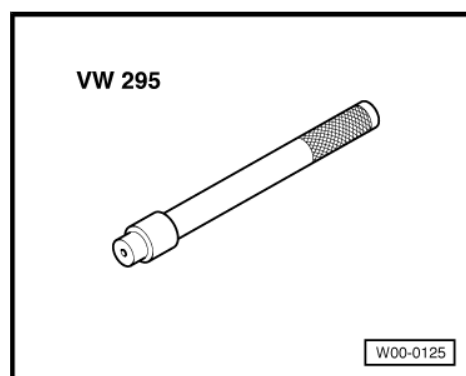




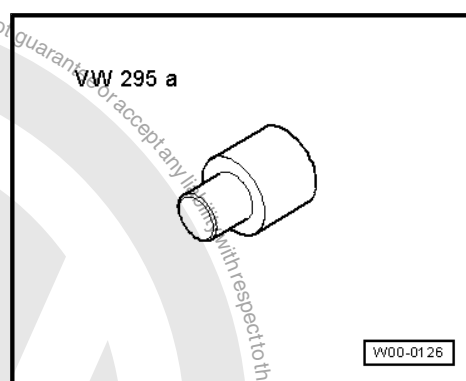
4 Special Tools

Special tools and workshop equipment required

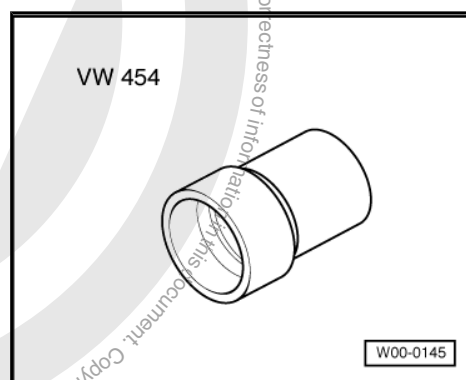
- ◆ Drift - VW295-



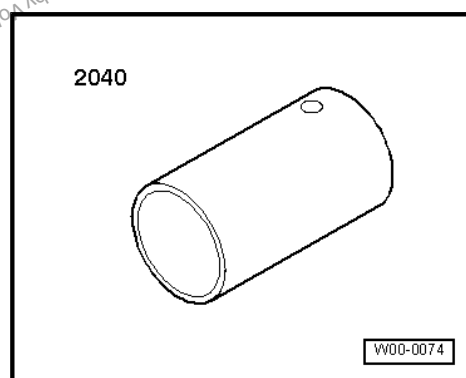
- ◆ Engine Support Adapter - VW295A-



- ◆ Thrust Piece - VW454-

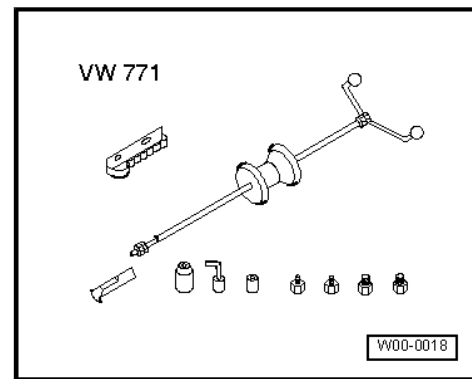


- ◆ Pipe - 2040-

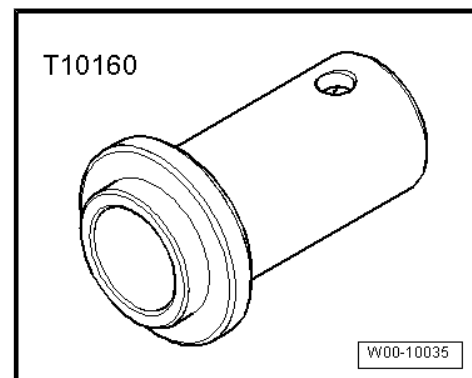




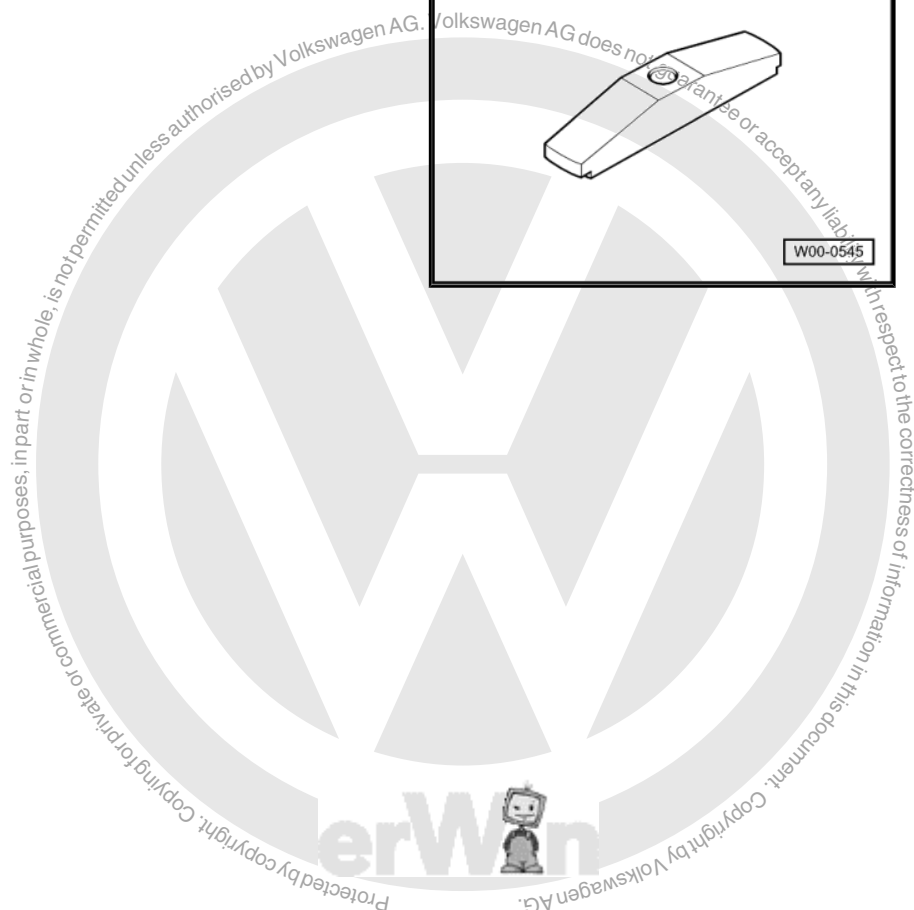
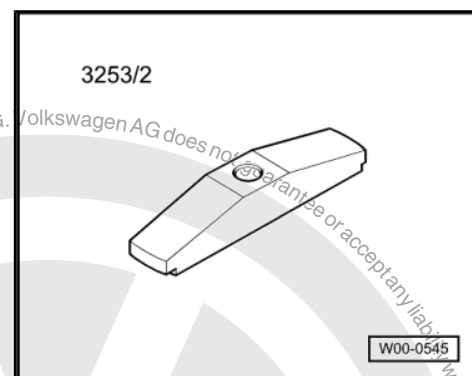
◆ Slide Hammer - VW771-

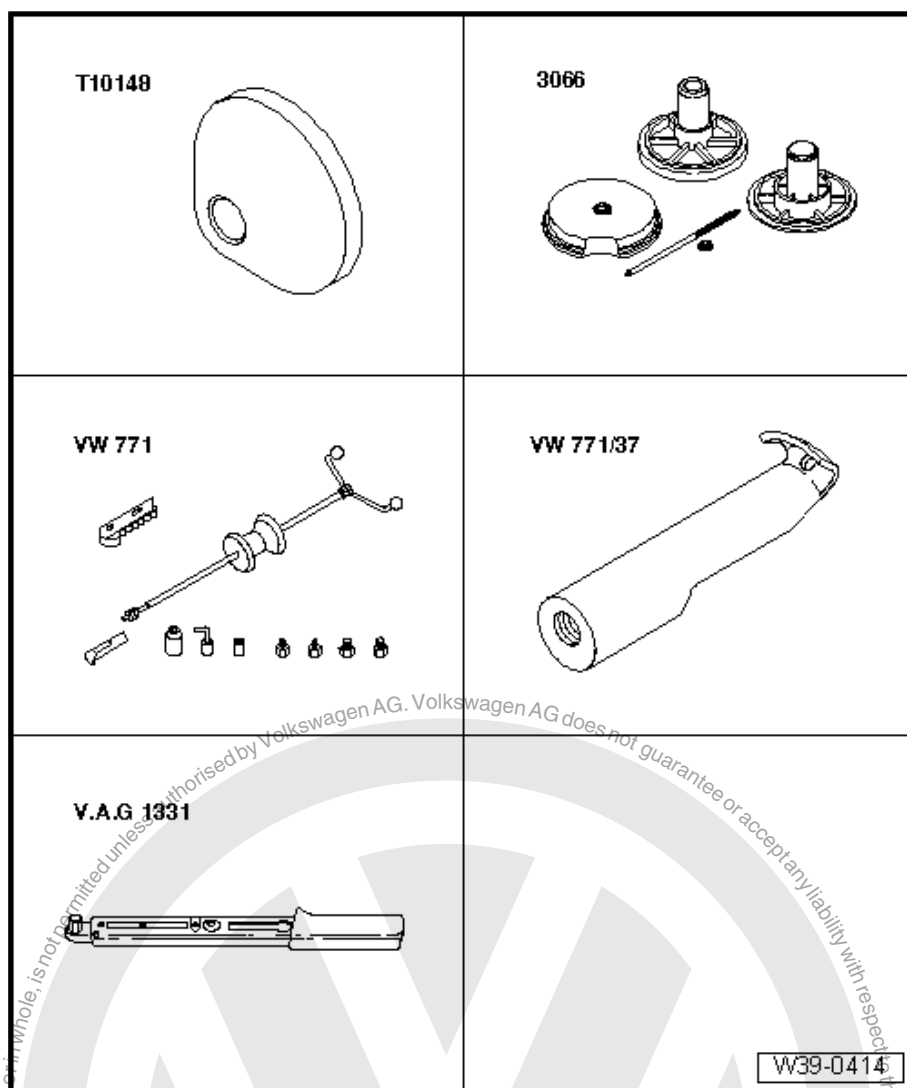


◆ Thrust Piece - T10160-

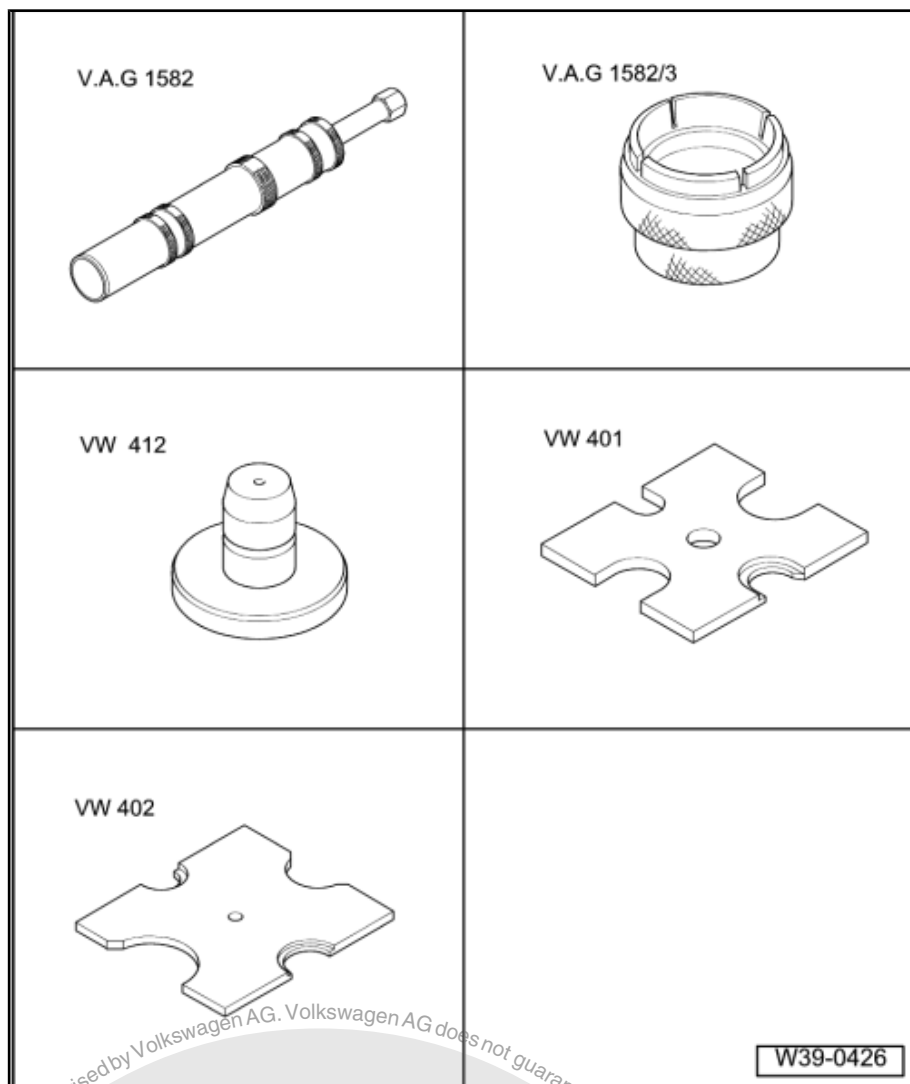


◆ Subframe Support Assembling Device - 3253/2-

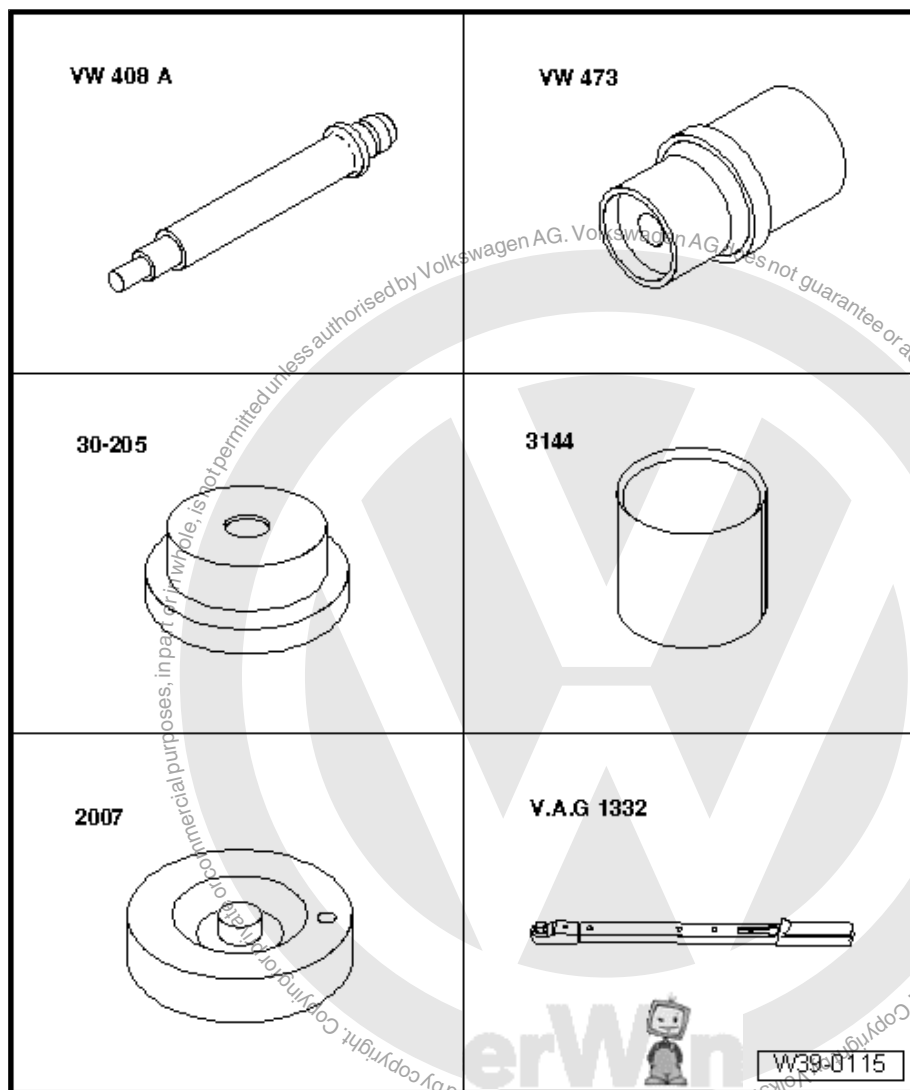




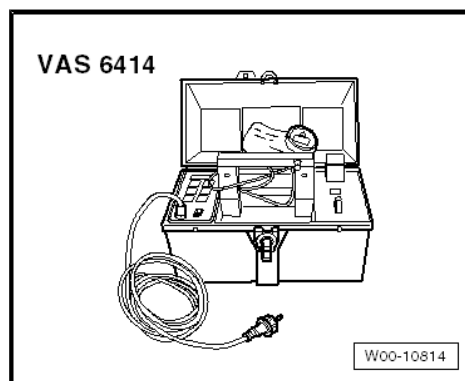
- ◆ Thrust Piece - T10148-
- ◆ Spindle on the Assembly Tool - 3066-
- ◆ Slide Hammer - VW771-
- ◆ Pulling Hook - VW771/37-
- ◆ Torque Wrench - VAG1331-
- ◆ Drip Tray



- ◆ Tapered Roller Bearing Puller - VAG1582-
- ◆ Grip - VAG1582/3-
- ◆ Punch - VW412-
- ◆ Pressure Plate - VW401-
- ◆ Pressure Plate - VW402-

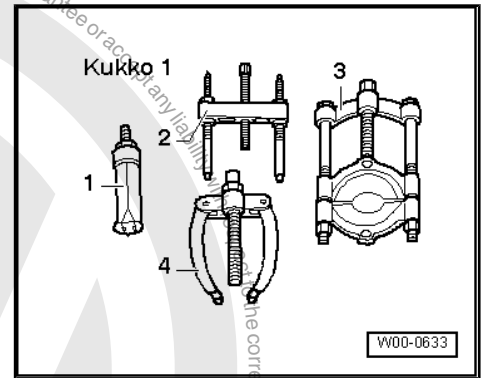


- ◆ Punch - VW408A-
- ◆ Thrust Piece - VW473-
- ◆ Thrust Pad - 30-205-
- ◆ Sleeve - 3144-
- ◆ Thrust Piece - 2007-
- ◆ Torque Wrench - VAG1332-
- ◆ Inductive Heater - VAS6414-

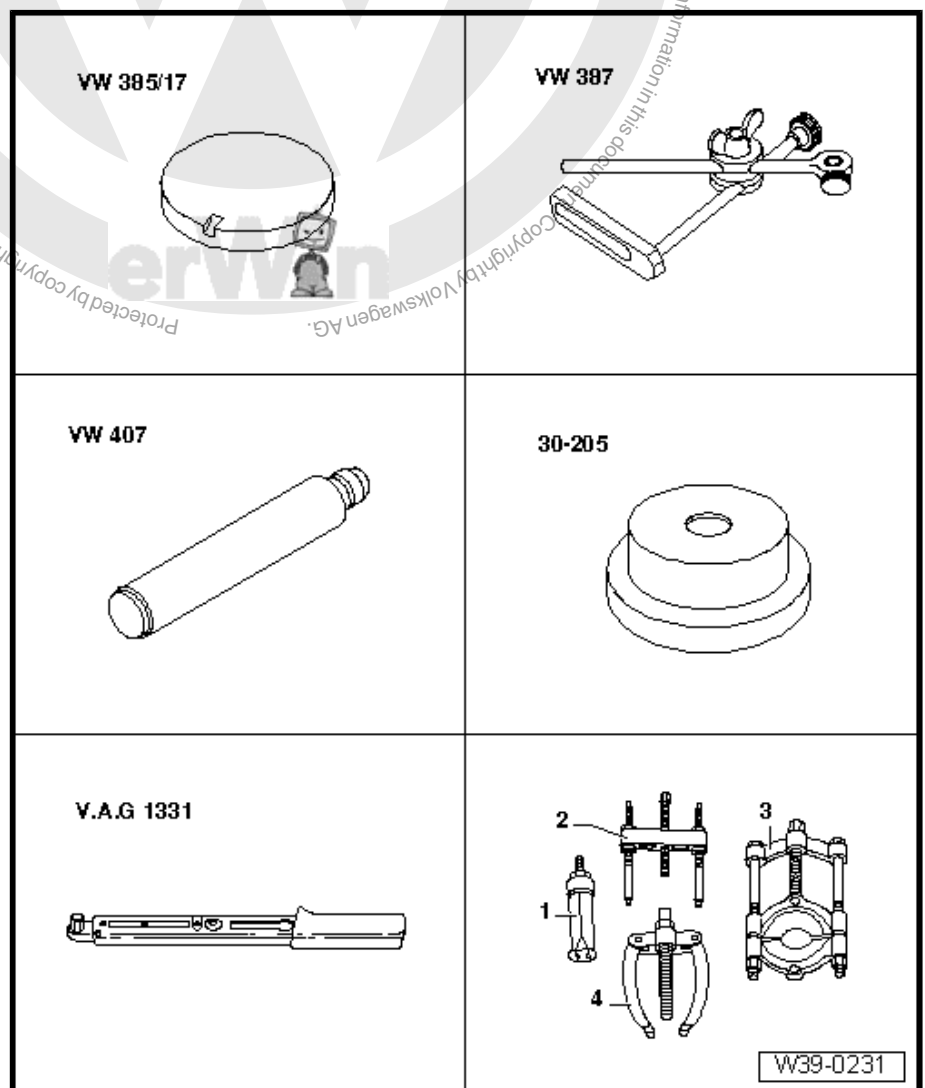




◆ -1- Internal Puller - 21/7-



◆ -4- Counter-Support - 22/2-



- ◆ Magnetic Plate 50 mm Diameter - VW385/17-
- ◆ Universal Dial Gauge Mount - VW387-
- ◆ Punch - VW407-
- ◆ Thrust Pad - 30-205-
- ◆ Torque Wrench - VAG1331-



- ◆ -1- Internal Puller - 21/7-
- ◆ -4- Counter-Support - 22/2-





5 Revision History

DRUCK NUMBER: MEX5R006321

Factory Edition	Edit Edition	Job Type	Feedback	Notes	Quality Checked By
12.2 017	12/19/2017	Local Feedback	1303096	Added sections for 162 transmission R&I w/ 1.8L engine.	Eric P.
12.2 013	08/16/2016	Local Update		Change Obergrup to "Drive-train"	Tom Perry
12.2 013	06/09/2015	Re-format			JY
12.2 013	09/09/2014	Factory Update			Tom Perry

Cautions & Warnings

Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Volkswagen retailer or other qualified shop. We especially urge you to consult an authorized Volkswagen retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Volkswagen.
- Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.
- Volkswagen is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Volkswagen retailer parts department for the latest information.
- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the VAG 1551 Scan Tool (ST).
- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.
- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.
- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it.
- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.
- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.
- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.
- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.

Cautions & Warnings

- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.
- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.
- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.
- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly; do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Volkswagen specifications. Makeshift tools, parts and procedures will not make good repairs.
- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.
- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.
- Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode.
- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.
- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.
- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.
- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.
- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).
- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Volkswagen Service technicians should test, disassemble or service the airbag system.

Cautions & Warnings

- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.
- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Volkswagen Service technicians using the VAG 1551 Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.
- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.
- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

I have read and I understand these Cautions and Warnings.